

# **University News**

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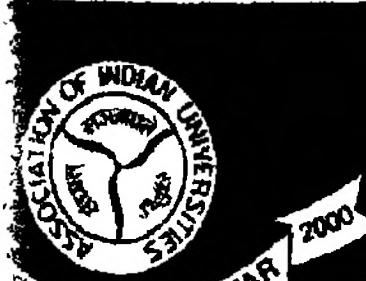
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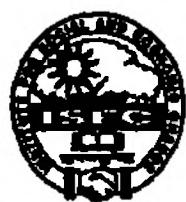
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# A Strategy for Internal Quality Enhancement

Antony Stella\*

The National Assessment and Accreditation Council (NAAC), established by UGC with the prime agenda of assessing and accrediting institutions of higher education, has completed 4 years of functioning. The process of Assessment and Accreditation, which combines self-study by the institutions and external assessment by peers, has been completed for ten institutions of higher education — one university and nine colleges. At this juncture, when we take stock of the situation, it indicates that NAAC has a long way to go. Apparently the "way" is also not clear as many of our institutions are still not very confident about whether they will be able to stand the external scrutiny.

Assessment and accreditation is by and large voluntary and not mandatory in almost all the 50 and odd countries where this process of Quality Assurance is in vogue, though academic audit may be made mandatory either directly or indirectly. Since the objective of such assessments is not to ensure minimal standards but to see where an institution stands with reference to quality in academic excellence, the spirit behind making the accreditation process voluntary has been well understood by the academia. Normally, any institution goes through various stages of development — the stage of *infancy* where the focus is to get recognition as an institution, the stage of *expansion* where the focus is to increase the program options and to keep the expanded structure viable, the stage of *consolidation* where the focus is to build on the potential components of the structure, the stage of *seeking social accreditation* where the institution strives hard for the recognition of the society, and finally the stage of *aspiring for excellence* where the focus is not just the impression of the society but the value judgment of an objective process. NAAC's process is towards this enlightened extreme.

An institution that wishes to have a better understanding of its strengths and weaknesses through the considered view of external peers, an institution that wishes to tell the beneficiaries where it stands with reference to its avowed commitments to higher education will benefit from such processes of external assessment. No doubt our institutions are keen on proving their worth. However, a cursory look at the list of institutions that have volunteered so far presents a different picture. Why is it that our institutions do not come forward quickly to take advantage of NAAC's process? It is certainly not due to any indifference or lack of faith in the process but mostly due to hesitation to get assessed by others which in turn emanates due to lack of self confidence.

The list of institutions that have volunteered to undergo the process remains more or less the same for the past two years, as far as universities are concerned. In the case of colleges, there have been some encouraging trends, though the number is not very impressive when we consider the 5000 and odd recognized colleges that offer liberal arts and science courses, as against the 158 universities that do the same. For every university that volunteers for Assessment and Accreditation we can expect 30 colleges to come forward. But the actual number of universities and colleges are only 37 and 128 respectively. This indicates that the

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situation is equally bad in both universities and colleges as far as the readiness for external scrutiny is concerned.

#### What is the Bottleneck?

Whenever we interact with the various institutions for promoting the concept of objective assessment by external peers, they share their apprehensions about the process of NAAC. One of the major reasons they attribute for this hesitation is the financial implications. However, an analysis of the expenditure involved reveals that it is only an imaginary excuse. The fee structure of NAAC works out to Rs. 1,20,000 for 10 departments and Rs. 1,70,000 for 20 departments. Apart from the accreditation fee, the university has to meet the expenditure towards the institutional visit of a team that may consist of 6 to 8 peers and assessors. Both the components of expenditure put together, for an average size university, may not exceed Rs. 4,00,000. The outcome of this exercise will be valid for a period of 5 years. A simple computation will show that the expense involved per year per department will be Rs. 4000/- (i.e. 4,00,000/20x5). We know that for postage and stationery alone every department will be spending more than this amount. Then, where does the question of affordability come in?

When this was explained, a senior officer of the university argued that it is not a question of whether a department can spend a few thousands or not. It is the question of taking away the money kept for bread and butter. If a person earns Rs. 5000 per month and if the basic needs of his family itself need Rs. 4500, all other luxury needs have to be met from the remaining 500 rupees and it is not fair to compare it with the Rs. 5000 he earns. According to him, spending on quality initiatives is like spending for luxury items. Though we could explain to him that the accreditation cost should not be treated as luxury expenditure but should be given the importance of a healthy measure, we could get a feel of their attitude towards assessment. However, with UGC's financial support to meet assessment and accreditation cost to the tune of Rs. 5,00,000/- these arguments are no more valid. Further, UGC's decision to link one third of its developmental grant to the performance evaluation of institutions has put a pressure on the institutions of higher education to take assessment and accreditation seriously.

But, in the case of colleges, such a financial support as well as linkage with funding, is yet to be materialized. Initiatives have been taken to convince the state governments on this matter. The states like

Tamil Nadu, Andhra Pradesh, Bihar, Maharashtra, Kerala and Haryana have taken specific efforts towards applying NAAC's process as a quality measure. UGC also has informed all the autonomous colleges that they should undergo this process before this plan period is over and that the cost involved is an admissible expenditure. Further, NAAC's fee structure for colleges is also considerably less as compared to the universities — Rs. 25,000 per faculty and it works out to Rs. 75,000 for a college that offers courses in all the three faculties — Arts, Science, and Commerce & Management. Including the cost of the team visit, it would not exceed Rs. 1,75,000.

However, our experience with colleges has shown that money is not the real reason for their poor response. On an average, in a medium size college, let us assume that there are 1000 students. As the assessment and accreditation is valid for 5 years, per year per student expenditure on assessment and accreditation will work out to Rs. 35/- ( $1,75,000/5 \times 1000$ ), even if they have to meet the entire expenditure. The Parent Teacher Association of one of the colleges had readily come forward to meet the accreditation cost. But that college never wrote to us after that.

At the same time there are institutions which have tapped the potential of the Parent Teacher Association and had initiated their work to get assessed. We cite these instances only as an attempt to show that finance is not a major constraint of many institutions, but it is the mindset that hampers their initiative.

#### Why Lack of Readiness?

Lack of readiness may be due to many reasons. One of them is the tendency of the institutions to underestimate their potential and magnify their limitations. There have been not less than a dozen instances where our pre-visit impressions were poor in many aspects but proved to be the other way when the peer team visited those institutions for assessment.

Another important factor is the faculty resistance to assessment and accreditation. This is again due to wrong perceptions: Many fear that the assessment and accreditation by NAAC will pass judgment about individual teachers and any negative remark in that context will be used by the institution against the teachers. This fear is unwarranted since NAAC only looks for the institutional standing and hence the contribution of the teaching community as a body to that stand. Also the contribution of the teaching

community of the institution will be assessed as one of the many other criteria and the individual teacher is not the focus of the process. Though we try to convince the teachers on this point, still many are not able to change their mindset. When we talk of NAAC's process as an objective, systematic and scientific way of taking value judgments, it is natural that it instils the fear of upsetting the existing system, especially when the faculty perceive that the merits of the methodology are yet to be proven. This is obviously due to the fact that the quality assurance in education, in a systematic, scientific and objective way — either internal or external, is not in the culture of our institutions. We are used to the informal, fragmentary, highly personalized and often deceptive value judgments passed by the society and the hard remarks in that value judgment, if any, are easy to dispense with the *what do they know* attitude.

Another reason is lack of institutionalizing good initiatives. Even institutions that are known for the good work they have been doing, become hesitant about NAAC's process saying that we ask for a lot of data and documentary evidence, while many of their good initiatives are informal. That is, our system is not even aware that innovations can be ushered in an organized manner, thus institutionalizing the process. We have seen institutions that have been observing many healthy practices informally for a long time. It is true that many good innovations are highly localized in the beginning, but once the merits are proven, such informal mechanisms should be formalized and in institutional dimension should be given. It is here that many of our institutions lose out. For example take the following aspects:

- Testing student's knowledge after admission
- Remedial courses
- Feedback on student experiences
- Avenues for unconventional methods of learning
- Projects and internships
- Research orientation at PG level
- Preparation of teaching plans
- Teaching material development
- Linkage with national bodies for teaching and research
- Career orientation in program options
- Flexibility and diversity in the curriculum
- Efforts to supplement the university offered curriculum

- Faculty participation in seminars
- Faculty participation in research
- Efforts to get research projects
- Publication
- Publicizing expertise available in the departments
- Consultancy
- Institution-industry linkage
- Placement efforts
- Counseling to students
- Alumni association
- Resource mobilization

In every institution we have visited, atleast for half a dozen aspects mentioned above, we have found model initiatives going on. But only when they are institutionalized or atleast formalized into an enabling provision, all components of the institution will adapt the same and contribute to the growth of the institution. When we interact with institutions on the process of institutionalizing these healthy practices, they often explain that the nature of the courses offered in the departments and the expertise available there are so varied that such efforts to be taken by all the departments may be difficult. There is truth in it and there is also a way to exploit this very variance and build a healthy competition among the departments to the advantage of the system. The simplest way to do it is by institutionalizing (making an enabling provision) some of the healthy practices. For example, assessment and accreditation, initially as an internal mechanism, can be one such provision. In fact this is what NAAC has been promoting through its guidelines for establishing Internal Quality Assurance Cells in institutions of higher education. Once this culture is built into the system, the hesitation of the institution to opt for external assessment as well as faculty resistance towards the same would settle down and then the internal mechanism may be enriched by the external component viz. NAAC's process. An attempt is made in the following description to explain how the institutions can adapt an internal mechanism and ensure quality, involving all its departments with freedom to choose their priorities.

#### **Internal Quality Enhancement**

Instead of imposing the healthy practices, the institutions should follow a participative approach where the departments will have the freedom to

choose their priorities and chalk out a plan of action to contribute to the academic standing of the institution through those priorities. For example, the Chemistry department may choose Consultancy as one of its strengths and the Economics department may choose the Extension activities as its priority. The Psychology department may opt for Guidance and Counseling services, apart from the priorities that should be common to all the departments like teaching-learning.

To do this internal exercise and judge where each of its departments stand in the quality continuum, the institution could choose two sets of criteria — Core and Optional. Core criteria may be predetermined by the institution and they may be made common to all departments while the departments may be given the freedom to choose from among the optional criteria. For example, out of the following 10 aspects, an institution may choose say, four aspects as core criteria and the rest may become the optional criteria for the departments to identify their priorities.

- Curricular aspects
- Teaching-learning and Evaluation
- Research
- Consultancy
- Student progression and support
- Resource mobilization
- Academic linkages
- Co-curricular and extension activities
- Goal orientation
- Innovations

To cite a more specific example, we can say that an autonomous college may fix the following as the core criteria for each of its departments:

- Curricular aspects
- Teaching-learning and evaluation
- Academic linkages
- Student progression and support

Out of the remaining six aspects the departments may be given the freedom to choose their priorities, may be two or three to begin with. The number of core and optional criteria may be fixed depending on the aspects of importance from the institution's point of view. Instead of 4+, it may

be 5+ or 6+ and the 4+ model has been suggested to initiate discussion on making the criteria more flexible. What should go under Core aspects and what should go under Optional will have to be worked out. One may feel that for an autonomous college, Evaluation is important enough to be put under the Core aspects. We should remember that when the department has to choose a few aspects in the optional category also, the overall pattern that would emerge would give enough data to understand the true picture of the department in all its dimensions.

The list given above is not exhaustive from the institutional point of view. There are a few aspects like Organization and Management, Infrastructure and Learning Resources, which are predominantly institutional, and the role of the departments in enhancing those aspects may be very limited. However, when the institution tries to see where it stands in totality, these institutional dimensions should be added.

The manuals written by NAAC will be a good source of reference to decide on the finer aspects to be covered under each of the above mentioned criteria. A small committee may work on it, perhaps the Internal Quality Assurance Cell or the Internal Quality Enhancement Cell, and see where every department stands with reference to those aspects. This internal exercise will help the individual departments to better understand their areas of strengths and weaknesses. A department with more weaker aspects will work towards making them fewer and the department with fewer issues of concern will work towards enhancing its academic ambience. Consequently, the whole institution will be geared towards improvement and soon the institution will be ready for the external process.

The details of how this internal exercise could be planned as a participative strategy is not discussed in this paper. All that this paper highlights is that based on unchecked apprehensions and wrong perceptions institutions need not hesitate to volunteer for assessment and accreditation. Instead, they should develop an internal mechanism for Quality Enhancement and see for themselves where they stand. This internal exercise will prepare the institutions for the external assessment by peers. If the institutions that are favourably disposed to the idea of self-analysis try this exercise, the standing of the institution in the quality continuum is sure to become better. □

# The Challenge of Globalization for Indian Universities

R.M. Naik\*

Indian Universities by world standards are far too behind their counterparts in developed countries. They still operate on old lines as if they are an extension of high school system. Whereas universities in developed countries like USA, Germany, UK are primarily research universities. Research output, especially need based, is their main contribution and education, is their by-product. Bush Commission report, *Science — The Endless Frontier* (1945) gave this philosophy to universities of USA and which is also adopted in other countries. National Science Foundation of US has reprinted this report in 1990, and re-circulated it.

The report prescribed that universities' main output should be research, patents, new technologies, intellectual property rights. Higher education should be their by-product. Students learn best by researching, and then it is relevant and up to date. It is because of this philosophy that the education in universities of US is observed to be innovative and creative in nature. Without research, it is believed that education remains stale and outdated. Normally two thirds budget of a university goes to research.

## Characteristics of Universities Abroad

On the campuses of universities like Madison, Cambridge, Edinburgh what we notice is that research companies are flocking round them. Incubators, research parks, innovation centres, patent and intellectual property rights bureaus are distinctly visible. Venture capital foundations and companies have opened offices in campuses in search of new technological ideas for commercialisation. Universities in developed countries have become like magnets which attract not only scholars but also industry, entrepreneurs and VCF companies from across the world. They are globalising their operations to meet the world needs both of education and of technology. Students from many countries, so also industries from across the world are coming to their campuses and they feel proud of the same. By virtue of strong research base they are a source of latest knowledge in education and a source of new

ideas, enabling companies to win. It is well realised in those countries that new knowledge, that is to say new technology, is an important source to bring about economic change. According to Nobel Laureate Bob Solow, USA has doubled its industrial output from 1909 to 1949 and that 80% of the credit is attributable to technology change.

Universities like Madison are producing patents as many as 1000 per year. The university sells patents to companies and earns an income as much as 40% of its budget. They generate wealth through research, which is believed to be the mainstay of high income economies in the world.

They spend about 4% of GNP on research. Low income economies like India spend very less, less than 1% of GNP on research so observed *World Development Report (WDR) '99*. The employment generation and income generation is attributed mainly to research in universities.

Young scholars along with in-service personnel carry out research, which is disseminated best through teaching in classes. Innovation and research are considered as "well springs" of economies.

## Helping Business to Win

Every university has a patent and technology licensing department engaged in technology sale. The author during the period of his recent three months visit to Germany, UK and USA, sponsored by the UGC, studied in depth the organization and management practices of universities along with their missions systems and procedures. Universities in general have huge campuses, with student strength in the range of 20 to 80 thousands and faculty strength from 1000 to 10,000. For example MIT, Boston has around 30,000 students and 3,000 professors, Karlsruhe University has around 25,000 students and 1,000 professors, all teachers have Ph.D. qualification. Faculty represent a wealth of talent and knowledge which is exploited to benefit both faculty and university financially. In India faculty with Ph.D. qualification are very few. Our students are thus being taught by lowly qualified and less experienced teachers.

Spin off of companies from universities is a

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common phenomenon, so also spin off of technologies. The companies like Apple Computers were conceived and born in universities. Project ideas were based on their Ph.D. theses. A foundation is set up in MIT, Boston with the facility of venture capital fund enabling professors and Ph.D. scholars to start new ventures based on technologies, they develop during the period of their research. Every year as many as 15-20 new technology based firms (NTBF) are born in MIT, Boston. The University gives consultancy on retainer basis to as many as 3,000 companies. This is not unique with MIT only. It is true with almost all universities in developed countries. They have created Technology Incubators to enable raw project ideas to be innovated to marketable stages. The entrepreneurs and professors are thrilled when they see their theoretical ideas being converted into practical projects. Thereby they are earning wealth for themselves so also for the university besides credit and satisfaction. Universities thus have become "Maternity Homes" for safe birth of new enterprises. Such enterprises which are based on brand new technologies help to reduce mortality rate and sickness of other industries.

#### New Model for Universities?

Does Indian economy need such universities? Can we do without them? at what cost? Without such schemes our investments are being made in sunset technologies. Obviously they cannot be competitive globally. National Council of Applied Economic Research, New Delhi has published the results of a survey which found that of the 657 Indian companies in the study sample that started up in 1997, 57% were manually operated and 38.7% were semi-automated. In the same period according to the study 80% of the start up companies in Japan were fully automated and 20% were semi-automated. It seems then that substantial investment in India is being made in companies which are based on outdated technologies, and which are therefore handicapped from the start. Such companies cannot hope to be competitive on global scale. In USA, 26% of capital investment is in new technology based firms (NTBFS), whereas in India NTBFs are almost non existent.

However, the shift from old technology to new technology industrial base is not easy to achieve. It presents many technological, social, economic problems, as well as resistance from trade unions. People must unlearn old methods and skills and adopt new technologies and knowledge. Universities must reorient themselves, prepare to offer courses and to interest people in learning and becoming more

competent. Without this strategy by universities, industries and industrial estates will languish and become sick, which would be looking for help from foreign collaborators. Can Indian universities dream of propelling industrial growth? They must do so forthwith. Otherwise universities may become dysfunctional and economy will run into difficulty. The rate of absorption of new technology in various walks of life depends much on knowledge of people and their scientific and technological capabilities.

#### New Vision for New World

What Indian universities lack today, is the new vision of new world. They ought to develop connections with best known universities in the world and correct their priorities and strategies. It is no doubt a long way. Yet, it must begin some where. Is it not that thousand miles journey begins with a single step?

Prof. Terman of Stanford University in USA observed in 1950 that industry so as to remain competitive globally needs access to first class research in universities. So also the first class researchers in universities need access to industry so as to commercialise their research findings. This is equally applicable to Indian universities at this juncture. They cannot become and remain competitive without the support of each other. Will our universities care to follow today what others did years before?

It is important to know how universities are conceived and started in those countries. The author visited a newly started Hamburg University in Germany. This university started twenty years before under collaboration from 15 best universities in USA, UK, Japan and Germany. Today this university has 10,000 students and 1000 professors. It started with a research park which today contains around 500 research based companies adding strength to the economy of the region. University is not planned in Germany without an industrial estate and our industrial estate is not planned without a university.

The author also visited Harriot Watt University at Edinburgh, which is located on 600 acres of land and has a research park on 6000 acres surrounding the University. The University of Madison (USA) has a strong Alumni Association known as Wisconsin Alumni Research Foundation which is managing and maintaining a big research park.

Taiwan has set up a "Science Town" at Hsinchu with some 13000 researchers in two universities, six national laboratories, and around 150 companies,

specialising in electronics. Tsukuba Science City near Tokyo is another example of university technology park collaboration.

On the other hand Indian universities are engaged more in teaching as if they are schools. The vector direction of our universities is wrong. They are largely teaching and examining bodies without research base, and hence they are not effective to cope with challenges. Will they learn themselves and adopt what best universities in the world are doing? Will they do correct bench marking?

Universities abroad have opened continuing education departments, more from 1980, for in-service personnel. They are offering short term refresher courses leading to Ph.D. The research work done by people in their work places is counted for the award of degree. They have a flexible model, Cafetaria approach in which students can choose a wide variety of options. A combination of economics, engineering and music is also possible.

The credit transfer system, from one university to another is common. A student can study for the same degree course in a number of universities. The credits earned in one university are approved in another. European commission encourages the mobility of students and professors. It has drawn a programme known as Leanhardo-da-vinci to provide financial support to promote such mobility. The students are allowed to get degree from anyone university which they have visited.

### Life Long Education

Continuing education has become so common that the inservice part time students studying in universities are ten times larger than the full time students. We see three generation students in campus. Learn while you earn, life long is very common. It is observed in an OECD study that Europe, Japan and USA together represented 80% industrial global output. The main contributing factors to this dominance include continuing education policies and practices of universities in developed countries. Continuing education facilitates better management of technology and adds significantly to economic success.

Many Indian universities, yet do not have continuing education departments, patent and technology licensing departments. Technology park and Incubators are conspicuously absent. They have almost no connection with industry and industries have almost no confidence in universities. The industrial progress in India is propelled by foreign

collaborators. Indian universities have not gone nearer to them, nor industries have established links with universities. Universities have become corporate offices bureaucratic and political in nature. Consequently what is taught in universities is not wanted and what is wanted is not taught. There is a serious mismatch between demand and supply. Rather than motivating and preparing students for the world of work the universities have become organizations which tend to thwart and impede the potential of their students. The National Education Policy of 1986 recommended autonomy to colleges to enable them to respond to the needs of industry in terms of research, training, and technology transfer. However progress has been slow.

The traditional affiliating system of universities has become a problem rather than a solution. It has stifled the innovation potential of academics and the public is unhappy. Attempts at improvement are being made. The lack of mobility of Indian academic staff and research staff to world class centres is seen as a major problem. Why is India unable to upgrade its universities? Do we realise that the cost of mediocrity is higher than the cost of upgrading? Why do Indian institutes not transfer technology to industry through the use of patents and IPRS?

To conclude, globalization of Indian universities is the pressing need of the time. Redefining their scope, missions and visions in the light of world wide changes, ought to be carried out forthwith. Restructuring the organizations, methods, systems and procedures, revising the university acts, making colleges autonomous should become the first item on agenda. Research in universities is the most cost efficient and cost effective model for employment and income generation. It should therefore become the focus university activity.

Universities to a nation are like heart to our body. Outdated universities are more costly than the cost of their modernisation. They should therefore be revamped urgently. There are no doubt many problems in adoption and implementation of new policies and practices. How to manage the change is certainly a big challenge before Indian universities. IIT experience along with experience from abroad need to be taken into account. The speed and direction of change in universities in coming years matters most to the well being of the people. It is hoped that with the given will and skill of leaders in academics, leaders in industry and politics, we will be able to achieve the desired goal. □

# **Performance Appraisal System in Industries**

## **Implications to Education System**

**Shagufta Jabeen\***

Educational Institutions and other sectors of economy have significant role to play for the sustainable development of the nation. The educational institutions train the manpower and the other sectors utilize them. Therefore, these two systems must go hand in hand and have continuous dialogue as to what is required and how it can be prepared? The partnership, which is essential parameter of University-Industry interface, is more in terms of Resources. The well-trained human power can well adjust in the society and contribute to the best of abilities.

### **Human Resource in Organisation**

An organization comprises various resources like machines, money, energy and human assets. The importance of human factor in any type of cooperative endeavour cannot be over-emphasized. It is a matter of common knowledge that every business organization depends for its effective functioning not so much on its material or financial resources as on its pool of able, dedicated and skilled human resources. The overwhelming importance of this factor is due to its unique characteristics.

- (1) Human resource can produce unlimited amounts through better ideas. There is no apparent limit to what people can accomplish when they are motivated to use their potential to create new and better ideas. No other resource can do this.
- (2) It is animate, active and living. It is the people who alone with their ability to feel, think, conceive and grow show satisfaction or dissatisfaction, resentment or pleasure, resistance or acceptance for all types of managerial actions.
- (3) All emotional problems emanate from human factor only and not other inanimate resources, which are passive.
- (4) Human resource is most complex and unpredictable in its behaviour. There is no cook-

book formula to guide a manager, how to motivate the workers.

- (5) A manager can buy everything but not the initiativeness and loyalty. Each individual has his/her own distinct background. This implies that all individuals in an organization cannot be treated alike.

Thus one can see that, human resource is the only resource which appreciates in its value with the passage of time. As time passes people become experienced and skilled. It is not so with other resources, which generally depreciate with time. In short management of human resources is of prime importance to every leader and for every type of endeavour. It covers the whole gamut of activities from acquisition and development to utilization of human resources.

Human Resource Development is a system of developing, in a continuous and planned way, the competencies of individual employees, dynamic groups (superior - subordinate), teams and the total organization to achieve organizational goals. It maximises the congruence between the individual and organizational goals of employees and develops an organizational culture in which superior-subordinate relationships, teamwork and collaboration among various units become strong and contribute to the professional well being, motivation and pride of employees. And this can be done only with a systematic or formal way of developing the competencies and motivating the individuals in the organization through Human Resource Development Process, HRD process comprises various sub systems such as (a) Performance Appraisal System; (b) Potential Appraisal System; (c) Training and Development System; (d) Career Planning and Development; (e) Feedback and Counseling; (f) Organizational Development; and (g) Data Storage System.

### **Performance Appraisal**

Performance Appraisal is a very critical HRD mechanism with different focus and purpose. It refers to all the formal procedures used in working organizations to evaluate the behaviour, contributions and potential of the group members.

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In the past it was evaluation of merit/performance of the individual, thus it was traditionally used as a mechanism of controlling employees through salary administration, reward administration, promotion and disciplinary action. These were in the form of confidential reports. These evaluations emphasized on employees' merits like initiative, dependability, personality etc. But this was, however, open to question as the connection between performance and possession of traits was doubtful.

In the modernization process, the scope was further extended to "objective centered approach", which initially was "man-centered approach". Peter F. Drucker popularized the phrase "Management By Objectives" (MBO). This is a process in which the goals are set between superior and subordinate with feedback of results as the cornerstone of MBO. It is best described as goal setting through mutual participation and agreement by supervisor and subordinate for the purpose of raising managerial and organizational goal achievement.

With the realization of importance of the human resources in an organization, it was felt that effective functioning of the performance appraisal system depended on a level of trust and commitment to the development of employees in any organization. This view presupposes congruence between the goals of the individual and the organizational needs as individual goals are taken care of with organizational goals. Performance Appraisal is an effective instrument for helping people grow and develop, it can be used as an effective mechanism of continuing education and learning from one another. Development oriented performance appraisal and review system when effectively practised substantially contribute to the organizational health and facilitates multiplication of organizational responsibilities.

In a study conducted on various industrial organizations in Baroda, it was stated that an organization could achieve effectiveness in its system if it could provide a satisfying performance appraisal system. Certain points, which emerged from the overall results of research, are :

- (a) Appraisals are done by immediate superior and reviewed by the next in the hierarchy.
- (b) Key performance areas are identified and departmental targets are set with mutual consent of both superior and the subordinate.
- (c) Information to be used for appraisal is derived from all the possible sources including the

appraisal himself. This leaves the appraisee satisfied.

- (d) Emphasis is on identifying managerial skills and personality traits.
- (e) Previous ratings are taken into consideration for current appraisals.
- (f) Appraisal system has separate components to identify potential differences and training needs and this is done on demonstrated strengths and weakness in the current period.
- (g) Uniform standard of appraisal is ensured through system of moderation by a committee.
- (h) Appraisals have a review discussion at the end.

From the above mentioned results, one organisation which emerged different of all other organisations, laid emphasis on development appraisal system. Six major aspects of its systems were :

1. *Planning the job for the ensuing year*. This ensures clarity and rapport building between the team leader and team member concerned.
2. *Counseling for development* : This is the heart and soul of the system. The emphasis is on openness and disclosure of performance with counseling as compulsory.
3. *Team performance* : The contribution of the individual to team performance is of primary importance in the entire system.
4. *Process parameters* : Process parameters with emphasis on quality, customer focus and systems form a core part of the appraisal system.
5. *Training* : The new appraisal system is one of the sources of analysing training needs for individuals and teams.
6. *Internal customer focus* : It is well established of internal external customers and that they are the best judge.

The developmental appraisal system and the new compensation system required individuals in an organisation to have faith in the 'win - win' way of thinking.

The success of the case mentioned above is that it involves each individual right from the beginning to the end. This keeps them motivated. Emphasis is on development of the individual rather than identifying weaknesses.

Cognizing the appraisal system at the university level, looks more of *evaluation of performance*. The appraisal form is partially filled in by the individual himself, e.g. particulars like (a) Courses taught, (b) Work load, (c) Departmental duties, (d) University assignments, (e). Participation in conferences/ seminars/ workshops, (f) Membership of professional organizations, (g) Academic/ professional honours conferred, (h) Research and publications, and (i) Any special achievement.

The second part is filled in by the reporting officer i.e. the head of department, where he states whether the authority agrees with the details given and states his/her views about the appraisee's ability to teach, conduct research, clarity of thought and expression. This is done confidentially. The question is, Can he do this independently?

In the last portion of the appraisal form which is for the reviewing officer i.e. Dean, he/she only states whether he/she accepts or rejects the appraisal. He/she seeks explanation only in

case of adverse remarks. The questions that arise are:

- (a) Is it only the number of seminars & publications that accounts for credit?
- (b) What about quality?
- (c) Does this appraisal system sustain motivation of teachers?

It can be seen that the appraisal mechanism i.e. one used in education system is more of a formal process and therefore the real purpose is not completely served. Perhaps this is the reason that the education set up is not able to cope up with the industrial set up. If the basic assumption is that, the motivated and skilled staff of any organization would certainly achieve the objectives of the organization, to make the personnel perfect and excellent in the workplace, the education system needs to learn from the success stories of industrial experience. Thus the spirit of entrepreneurship and corporate culture can be promoted in the university, which are very essential for the next millennium. □



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**DIRECTOR**

# Women And The Second Freedom

**Dr. Ela R. Bhatt, Founder, Self Employed Women's Association (SEWA), Ahmedabad delivered convocation address at the Ninth Convocation of Sri Padmavati Mahila Visvavidyalayam, Tirupati on Monday, the 8th March, 1999 (Women's Day).** She said "Over a period of time, we realised that the right to vote was not enough for the poor and women. They wanted a voice and visibility. It took still more years for us to realise that this was not possible without access to and ownership of economic resources by these poor women. Coming out of their state of exploitation by men, society, and the State, the poor women wanted to enjoy what I now call Second Freedom : Doosri Azadi." Excerpts

As the struggle for Independence was won, the atmosphere in our universities and the civic life was full of restless enthusiasm to rebuild the nation. I eagerly remember those days in the university when I had enthusiastically joined the upcoming student leaders, including my future husband. I was a timid college girl, yet I had gathered courage to join the efforts, like so many other young people at that time, to try and make personal and public meaning of the recently gained freedom from the foreign rule.

Our teachers sent us out to the people of India, particularly to the rural poor. Our parents had their doubts, but they did not very much stop us from our journey to these people. Over a period of time, we realised that the right to vote was not enough for the poor and women. They wanted a voice and visibility. As the poor, they wanted more than just day-to-day survival. As women, they wanted opportunities to learn and to act. As workers in India's self employed sector, they wanted to be a part of the labour movement. As Dalits and minorities, they wanted to move in from the margins to the mainstream. Yes, they wanted a voice and visibility. It took still more years for us to realise that this was not possible without access to and ownership of economic resources by

these poor women. Coming out of their state of exploitation by men, society, and the State, the poor women wanted to enjoy what I now call Second Freedom : Doosri Azadi.

The First Freedom, political power, the country had achieved in 1947. The Second Freedom, economic power, was yet to be achieved. As I understood Gandhiji, economic self-reliance was as important for him as political independence. He called economic poverty 'a moral collapse' of the society. True, political change or technological change does not necessarily remove poverty because it does not remove economic exploitation. The problem of poverty and loss of freedom are not separate.

The yearning for the Second Freedom inspired us to greater actions than we had thought possible in our student days. It pushed us each year to develop an adventurous attitude, enlarge the scope of the search and believe in the future with a sense of hope and humour. We did not have to blame 'destiny', 'God's will' or the 'system.' I spent my teenage in getting preparing for the students' agenda of building of the nation in whose lap we grew, and the next 40 years of my adult life in actually trying to build women, and us for the Second Freedom. I felt very proud of our nation, and, today I feel proud of the strength of our sisters. I do feel like celebrating

the future of the past 50 years of India's independence in which India is coming to the centre stage of the global forces.

The most sustained experience of my life since India's independence has been the search for the Second Freedom, the economic empowerment of the poor, toiling women of Gujarat. For me, this half a century has seen constantly renewed fulfilments in spite of some failures, disappointments, and even humiliations in my public life.

Gandhi's thinking has shown us the way, a clear direction leading us to commitment, sustained efforts, a gentle but firm belief in women's leadership in social change, and a willingness to see beyond the present. What has been inspiring about this search is realising how much we achieved, but at the same time realising that we can do much more. We realised how significantly we were able to transform the place and time we have been through, and what is more inspiring is that it never occurred to us not to.

I have seen at close quarters, how a SEWA member experiences economic freedom. When she has a room of her own, a farm of her own, a wall of her own, or a forest of her own, and, a bank of her own as she moves towards full employment at her level, she has more 'operational freedom' on a day-to-day basis in her world of work and arrives at a bargaining position in the dealings with the local vested interests, inside or outside her own home. Land reforms, green revolution, water management were the nationwide initiatives of the early years of freedom. It is in these later years that SEWA women gained the operational meaning.

The poor women must have rupees in their own pockets, so they are no longer bonded against their will to the local money lenders, contractors, landlords or social struc-

ture. The poor women must also be equipped to shed the sense of inferiority because of gender, caste, illiteracy, and poverty, by building their organised strength through self-managed, self-owned, viable economic organisations. It is their organised economic strength that helps them to exercise their political rights and resist oppressive social forces. How eagerly we women agreed to the logic of Economics in those early years, and, more damagingly to the idea that Economics can, indeed, be separated from social reality. It is only in these later years that we have started suggesting that laws of economics operate in social reality, that society cannot be reduced to market forces, that social capital is the basis on which economic capital can have a stable and sustained growth.

Friends, our civilisation is Aranyak Sanskriti. Knowledge is known as Aranyak, where the perception of life has been total. But the onslaught on our natural resources has ruined our ecosystem. We have to realise that there can be no rational and as equitable development without conserving our ecosystem. The human condition and the state of environment are very closely related to each other. The rural poor and especially rural women know this well. For example, the fire-wood collecting women of Girnar forests near Junagadh often tell us, 'The Girnar is green when our lives are green'. They realise better than anyone else the symbiotic relationship between themselves and the forests.

Waste and pollution destroy the foundation for long term sustainable growth of the country. Land that erodes today cannot support a life of progress tomorrow. Water resources poisoned or spoiled for quick gains cannot be easily revived to yield steady, lasting returns. But these and nature's other gifts can be both used, saved

and multiplied. To strike and keep that balance requires vision, wisdom and the coordinated energies of the public and the government in a partnership for sustained development. Friends, this is the most important and urgent task before you, lest the whole country spreads into a vast wasteland. Can we not green our environment and be evergreen?

In His early book, *Hind Swaraj*, Mahatma Gandhi said, it took Britain half the world to feed itself. He asked : 'If India became like Britain, how many worlds would it need?' We quote that often. We don't have the rest of the world to rape, so we rape our own countryside. If you set up a paper mill, it wastes the entire forest around it, and the forest moves farther and farther away so now paper mills are going to the Northeast or the Andaman Islands to get supplies. The forests are disappearing, with a tremendous impact on the lives of the poor who live around them.

For a long time people blamed the destruction of the forests on tribals or other village people who live in or near the forests : especially blaming slash-and-burn cultivation. But when tribals and villagers used the forests, they made sure they were not destroyed : they collected only twigs, small branches, and dead wood. It's not they who have destroyed the forests; it's the market economy.

We need to develop forest for three reasons : firstly, the ecological security of the watershed area : that is, to prevent erosion and the ensuing floods. Secondly, to meet the basic needs of people for things like fuel, fodder, thatch, and poles. Thirdly, to meet the cash needs of the people : that is, growing trees to earn money. Once the needs of the people are satisfied you can also use trees for commercial purposes, like making paper.

So far our common resources of water, land, and forests have been controlled by the state structures, and they've made a complete mess of things. We've got water, but we haven't developed a system to trap it as it falls. There's too much centralisation. People expect the state to provide them with water rather than have their own village tank, making sure every family gets a share from it. In times of drought, when people are threatened with starvation because they can't buy food, we spend millions of rupees to employ them in building roads, so they'll have some cash. The money could be better used for projects to harvest water, like small check dams and tanks.

Given the fact our society is caste ridden and corrupt, the question is : How can we transfer control to the people? We must rebuild village communities and also give women a voice in the management of these communities. Women are the vital element. When we talk about basic needs, we are talking about women. Unless we give women a voice, we will never give the environment a voice. One can understand this if we start with the fact that the basic needs of a family are often seen only in terms of cash, which is held by the man, not the woman. But the man's priority can be completely different; he sees fuel as non-cash, something that's gotten free from the environment.

Fuel is always the last thing bought with the family's supply of cash. Men will buy food, clothing, and may be a radio, but they are seldom willing to spend money for fuel. It is a woman's job to go out and forage for it. If the surrounding trees are cut, the woman has to walk farther and farther and spend hours a day just to get fuel to cook a meal. A man is perfectly willing to cut and sell a tree to get cash, but a woman wants the trees nearby so she can collect twigs and leaves.

Thus it is often the woman who cherishes and protects the environment (not the man).

I travelled, few years back, as the Chair of the National Commission on Self Employed Women, through 18 States of our country, holding public hearings, taking evidence from the poor women. We met and listened to these women working in fields, factories, mines, their homes, on mountains, roads, shores, in downtown markets. What did we find? We found the growing need of women to find work and the enormous problems they face in the labour market: high fertility putting restrictions on their mobility, lack of transferable skills, lack of knowledge of markets and techniques and lack of access to assets and capital tools.

After meeting these women, we also realised that women are better fighters against poverty than their men. They have more calculative, stable, futuristic strategies to deal with their own environment. Their courage to fight the wrath of nature, famines and floods is heroic. Everywhere in the country we found women were the most committed proponents of our future. Therefore, I would like to tell you that the future of this country is in the hands of the rural women of India. It is not a rhetoric, it is a fact that I state with knowledge and confidence, with a strong hope that you will always give full regard to these women while building the destiny of this country.

While building the destiny of new India, you will be working with men, together as colleagues, as partners in life and in work. On that point I would like to mention a word on man-woman relationship. Man and woman live under one roof. To all appearance, they may seem to live together but in reality often there is no togetherness or companionship in the right spirit. Once a father took his child to a zoo

promising to show him the lamb sleeping with the lion. The boy saw only the lion in the cage. The father explained that the lamb was inside the stomach of the lion. This is the kind of relationship one sees often in our homes. There is no morality in the co-existence of the lion and the lamb.

So, with all earnestness, on Women's Day, I would like to appeal to every girl here to build up your individuality. You may live with the young man you like, love him with all your heart and soul, give sacrifice when needed, but on no account should your entire existence totally depend on him. Education has not been able, so far, to emancipate girls from this abject compelling dependence on man. In such case, your education, your citizenship are only ornamental. I strongly feel that why should a woman need a man to guard her safety and honour. She is capable to protect herself. The man will have to help her to shed her fear of him. Men are not wolves, women are not seductress. Jointly you will have to build a society where both can enjoy safety and freedom, and can co-exist without exploiting each other. The basis of the man-woman relationship should be of mutual trust and affection and not fear or greed.

A woman has to seek protection because she regards physical force has never been the final arbiter of human destiny. A human excels not by physical power but by his or her superiority in the qualities of head and heart.

What is the woman's prerogative? Obviously, her motherhood. Of course, there is no question about motherhood being the zenith of womanhood. But by motherhood we mean only that motherhood which is of her own wish, not the forced motherhood. My dear young sisters, give up the helpless aspiration for Saubhagya or even motherhood. In a woman's life, her sole fulfilment need not be in marriage or motherhood. Life is a many splendoured thing. Stand up and equip yourself to embrace all, to serve all. Take control of your own life and body and go ahead to fulfil your goals which are far nobler and loftier.

In all revolutions, the revolutionary girls were never nervous in presence of their men cadre nor the revolutionary boys looked upon their women cadre as objects of lust. They worked in comradeship for the advent of revolution. This is the kind of human relationship you will create while working together building your India, a peaceful, democratic motherland. □



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Population, Area, Density and Percentage of Urban Population to  
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Crude Birth and Death Rates, Infant Mortality Rate, Total Fertility Rate and  
Average Annual Growth Rate of Selected Countries

Country	Population estimates as on mid year (Millions)				Surface Area sq. km. (000's)				Density of population person per sq. km.				Urban population as per cent to total population				Crude Birth Rate (per 1000 population)				Crude Death Rate (per 1000 population)				Infant Mortality Rate (per 1000 live births)				Total Fertility Rate		Average Annual Growth Rate(%)	
	1996	1998	1996	1998	1996	1998	1994	1998	1996	1998	1994	1998	1994	1998	1994	1998	1994	1998	1994	1998	1994	1998	1994	1998	1960-94							
SAARC																																
1. Bangladesh	120.07	123.4	144	834	857	18	16	15	1. Bangladesh	23.7	27	10.2	8	85	82	2.9	3.3	2.4	2.4	2.1	2.1	2.1	2.1	2.1	2.1							
2. Bhutan	1.8	1.8	47	39	39	6	15	15	2. Bhutan	41.5	40	14.7	9	113	71	5.9	5.6	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2							
3. India	934.2	988.7	3,287	284	301	27	26	26	3. India	28.7	27	93	9	74	72	3.5	3.4	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7							
4. Maldives	0.26	0.3	0.3	877	1000	27	25	25	4. Maldives	41.5	42	8.2	9	53	30	6.8	6.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4							
5. Nepal	21.1	23.7	141	150	168	13	10	10	5. Nepal	39.6	33	12.6	11	92	79	5.4	4.6	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9							
6. Pakistan	134.1	141.9	796	169	178	34	28	28	6. Pakistan	38.6	39	8.7	11	80	91	5.5	5.6	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9							
7. Sri Lanka	18.3	18.9	66	277	286	22	22	22	7. Sri Lanka	17.8	19	5.8	6	16	16.5	1.7	2.2	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7							
Other Asian and Pacific									Other Asian and Pacific																							
8. China	1232.1	1242.5	9,597	128	129	29	31	31	8. China	17.2	17	7.4	7	43	31	1.0	1.8	1.8	1.8	2.1	2.1	2.1	2.1	2.1	2.1							
9. Indonesia	198.3	207.4	1,905	104	109	34	37	37	9. Indonesia	23.5	24	8.0	8	53	66	2.5	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6							
10. Malaysia	20.6	22.2	330	62	67	53	57	57	10. Malaysia	27.8	26	5.0	5	12	10	3.4	3.2	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6							
11. Philippines	71.9	75.3	300	240	251	53	47	47	11. Philippines	30.7	30	6.2	7	36	34	3.8	3.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6							
12. Rep. of Korea	45.5	46.4	99	460	469	80	79	79	12. Rep. of Korea	15.3	16	6.3	6	10	11	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7							
13. Thailand	60.0	61.1	513	117	119	20	31	31	13. Thailand	16.6	17	6.1	7	29	25	1.0	2.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3							
14. Australia	18.3	18.7	7,713	2	2	85	85	85	14. Australia*	15.0*	14	7.0*	7	6	5.3	1.9	1.8	1.1**	1.1**	1.1**	1.1**	1.1**	1.1**	1.1**	1.1**	1.1**						
15. Japan	125.8	126.4	378	333	334	77	78	78	15. Japan*	10.0*	10	8.0*	7	4	3.8	1.5	1.4	0.3**	0.3**	0.3**	0.3**	0.3**	0.3**	0.3**	0.3**	0.3**						
16. New Zealand	3.6	3.8	271	13	14	86	85	85	16. New Zealand*	17.0*	15	8.0*	7	7	6.7	2.1	2.0	1.4**	1.4**	1.4**	1.4**	1.4**	1.4**	1.4**	1.4**	1.4**						
Africa									Africa																							
17. Ghana	17.8	18.9	239	75	79	36	35	35	17. Ghana	39.1	40	11.2	12	79	66	5.5	5.5	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7						
18. Kenya	31.8	28.3	580	55	49	27	27	27	18. Kenya	35.3	33	11.6	13	70	62	5.0	4.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5							
19. Nigeria	115.0	121.8	924	124	132	39	39	39	19. Nigeria	45.2	45	15.0	15	82	84	6.4	6.5	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8						
20. South Africa	42.4	38.9	1221	35	32	50	57	57	20. South Africa	30.7	27	8.6	11	51	52	4.0	3.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5							
21. Uganda	19.8	21.0	241	82	32	12	14	14	21. Uganda	51.1	48	22.3	21	112	81	7.1	6.9	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2							
22. Zambia	8.3	9.5	752	11	87	43	30	30	22. Zambia	43.4	42	18.5	23	110	109	5.8	6.1	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8							
North America									North America																							
23. Canada	30.0	30.6	9971	3	3	77	77	77	23. Canada	13.1	12	7.2	7	62	63	1.8	1.6	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4							
24. USA	266.6	270.2	9364	28	29	76	75	75	24. USA	15.6	15	8.8	9	82	70	2.1	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0							
South America									South America																							
25. Argentina	35.2	36.1	2790	13	13	88	88	88	25. Argentina	20.5	19	8.1	8	23	22.2	2.8	2.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5							
26. Brazil	157.9	162.1	8512	18	19	78	78	78	26. Brazil	20.4	22	7.2	8	45	43	2.3	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3							
Europe									Europe																							
27. France	58.4	58.8	55																													

## CAMPUS NEWS

### Quality Assurance in Open Education

It is reported that the 4th G. Ram Reddy Memorial lecture on "Quality Assurance in Open and Distance Education" was delivered by Prof. Ian Mugridge, former Director of Commonwealth of Learning (COL) in New Delhi recently. Prof. Mugridge said the practice of quality assurance cannot be undertaken in isolation by selected parts of institutions or by units within them. "Although procedures will clearly vary from unit to unit in line with their differing functions, the institutional structure must be seen as a whole and based on common policies and assumptions. Thus, a quality assurance system must embrace the entire organisation and emphasise the mutually supportive nature of quality assurance procedures among departments."

Prof. Mugridge said this was not to argue for the establishment of a quality assurance unit, but simply to state clearly the need for integration. If this is the case for conventional universities, it is so much more for providers of open and distance education.

One of the common features is that all the major functions of the institution — development, production and distribution of courses, instruction, student support and so on — must be closely and carefully integrated to provide an effective service to students. Units cannot be allowed to go their own way in isolation from others; and neither, therefore, can their quality assurance policies and procedures, Prof. Mugridge said adding that what institutions need for effective quality assurance is a set

of processes that establish goals, assess how they are being met and change practice to make necessary improvements. These, Prof. Mugridge said, involve a regular review of programmes, of teaching activities, of support functions, which while administered by individual units, must be seen within an overall institutional context.

In a time when accountability of the Government and public is becoming increasingly important, there is a good deal of merit in establishing some visible quality assurance measures — like student questionnaires — that demonstrate externally as well as internally that an institution is prepared to take quality assurance seriously, he said.

The first quality assurance can

be simply defined as measures taken to avoid faults, as the set of activities undertaken to ensure that standards are specified, clearly understood and reached consistently for all the activities of the institution. The second expression of quality control is defined as a measure taken to correct faults, as a retrospective activity eliminating or improving faulty products or services. Both of these overlapping functions, along with the monitoring of the procedures, make up for quality management, Prof. Mugridge explained.

But, the challenge for open and distance educators is to use new technologies in ways that enhance learning, that are educationally process-oriented and that thus emphasise communication and reflection over simple transfer of content. "This challenge must be taken up against a background in

### GUJARAT VIDYAPITH AHMEDABAD-380 014

#### Admission Notice

S.No.	Course	Eligibility Criteria
1.	M.A. — Gandhian Thought	Bachelor's degree with 50% marks
2.	M.Phil — " "	Master degree with 55% marks
3.	M.Phil — Peace Studies	M.A. with 55% marks in Social Science
4.	M.Phil — Science & Non-violence	M.Sc. with 55% marks
Limited fellowships for full-time students.		
Contact : Principal, Mahadev Desai Samaj Seva Mahavidyalay, Gujarat Vidyapith, Ashram Road, Ahmedabad-380 014.		
Last date : 14.8.1999		
Dt. 13.7.99		
S.K. Patel REGISTRAR		

which much of the media discussion of virtual universities seems grounded in a content-transfer model of education and in which many politicians and even university administrators support such a model because of its cheapness," he pointed out. The issue also is to provide quality learning for those students with the technological resources to learning, while, at the same time, providing learning of equal quality for those who do not have that capacity.

### **Computerised Student Support Services**

It is reported that a full-fledged Computerised Student Services Centre was inaugurated by Prof. A.W. Khan, Vice-Chancellor of Indira Gandhi National Open University (IGNOU) at the university campus.

The Centre, dedicated to the founder Vice-Chancellor of IGNOU, Prof. G. Ram Reddy, will function on 'Single Window' basis where sundry problems of the students pertaining to regional centres, course material, admission, examination and related issues will be handled.

An online educational website offering tutorials on the IGNOU courses has also been launched recently. The website is designed to be a 'test-prep' for IGNOU's highly sought-after BIT and ADIT courses. The website has a huge database of questions from all the subjects included for this entrance test. The student, once registered can have access to the 'Question Database' from any place in the world. The tutorial offers a set of questions so that the student can give his answers online and evaluate himself on a pre-set score pattern. To help the student the website will also point

out the mistakes committed by him/her.

### **Courses in Rural Development**

The Rural Development and Appropriate Technology Centre (RUDAT) was established in the Physics Department of the Cochin University of Science & Technology with the twin objectives of performing as a research centre to find solutions to problems like solid waste management, energy production and low-cost housing and imparting training in appropriate technologies.

It is reported that the RUDAT will get an assistance of Rs. 65 lakhs under the Dutch Government's economic cooperation programme. The assistance in the form of a grant will be used to strengthen RUDAT and enable it to develop the technologies needed by the rural people of the State. RUDAT will also conduct degree and postgraduate courses to achieve this end.

A survey to identify the fundamental problems of the rural people of the State and to assess the opportunities available to students trained in rural and appropriate technologies will be part of the package.

The survey will be conducted by the Integrated Rural Technology Centre of Mundur assisted by the Department of Applied Economics of CUSAT.

The RUDAT Co-ordinator, Prof. K.P. Vijayakumar, said what is being initially conceived is a two-semester one-year-long course in appropriate technology. All graduates are eligible for admission to the course. The curriculum being evolved is such that those who complete the course can work as 'resource persons'. RUDAT has plans to launch a full-

time postgraduate course in the discipline later.

The curriculum for the courses of RUDAT is being evolved with the assistance of the IRTC, Institute for Rural Management and Administration, Ahmedabad, and the Gandhigram Rural Institute, Madurai.

### **Award of ISO-9001**

Recently, the Central Library of Indian Institute of Technology Madras has been awarded ISO-9001. Dr. Harish Chandra, Librarian received a copy of the certificate of ISO-9001 along with memento from the Chief Guest Mr. N. Kumar, Managing Director, Chemplast-Sanmar, Chennai in the presence of Prof. R. Natarajan, Director, Prof. C.R. Muthukrishnan, Deputy Director, Prof. S.S. Gokhale, Management Representative of ISO-9001 of IIT Madras, Mr. Anil Raiikar, CEO, RWTUV, India and other heads of five units participated in ISO certification. For ISO certification, the Central Library prepared a detailed systems and procedures manual and submitted to the Management Representative of ISO-9001. Various periodic internal and external quality auditing were also conducted before awarding the certificate.

### **Committees for Sanskrit Year**

In order to celebrate the Sanskrit year 1999-2000 (Yugabda 5101) it is reported that three committees have been constituted by Dr. Ram Murti Sharma, Vice-Chancellor, Sampurnanand Sanskrit University, Varanasi.

The three high level committees constituted are *Sanrakshak*, *Sammanit Sadasya* and *Vithistha Sadasya*.

The *Sanrakshak* committee has

U.P. Governor Suraj Bhan, HRD Minister Murli Manohar Joshi, Chief Minister Kalyan Singh and Higher Education Minister Dr. Narendra Singh Gaur, besides others as its members.

The *Sammanit Sadasya* committee consists of Vice-Chancellor of Banaras Hindu University (BHU) Dr. Y.C. Simhardi, Vice-Chancellor of Central Institute of Higher Tibetan Studies Dr. S. Rimphoche, Padma Bhushan Pt. Baldev Upadhyaya, Padma Bhushan Pt. Vidyaniwas Mishra, Padam Shri Dr. V. Venkatachalam and Dr. Batuknath Shah Khistey.

And the third committee *Vithistha Sadasya* committee comprises Anantnarayan Singh and also all Deans and heads of Sampurnanand Sanskrit University.

### **Indo-American Tie Up**

It is reported that a seminar on international studies has been organised by Indo-American Centre for International Studies (IACIS) and the Regional Institute of Journalism and Mass Communication (RIJAM) jointly. Shri Jahnu Barua, noted film maker and Chairman of RIJAM, and Professor Isaac Sequeira among others were present on the occasion.

Dr. Kamaleswar Bora, eminent academician stressed upon reorienting our educational system towards more vocationalisation from the present overwhelming orientation towards non-technical streams of studies. He informed that out of the 65 lakh students pursuing higher education all over the country today at least 40 per cent are in the arts stream which he claims as an almost total wastage. He further said that there are about 9,000 colleges, 235 universities and 32 deemed universities in the country offering av-

enues of higher education to youngsters. He hoped interactions with the IACIS would result in tackling this situation in future.

Dr. Carolyn Elliott, Executive Director, IACIS said that IACIS had been constantly endeavouring to facilitate more and more meaningful exchanges of scholarship between India and America. She also called upon the students as well as academics for utilising the manifold societies offered by the Centre ranging from library to movie library and scholarships for short term studies in USA.

### **NAAC Accreditation**

Pondicherry University, an autonomous body, and Avinash Lingam Women's University, a deemed university are reported to get accredited by the National Assessment and Accreditation Council (NAAC), the quality assurance body of the University Grants Commission (UGC).

Further it is reported that NAAC will host the bi-annual conference of the International Network of Quality Assurance Agencies in Higher Education at Bangalore in the year 2001. The conference will focus on all the quality assurance agencies having an uniform assessment system.

### **MBA : BFIA Course**

It is reported that college of Business Studies, Delhi Universities is offering a new vocational course, Bachelor of Financial and Investment Analysis (BFIA).

Bachelor of Financial & Investment Analysis, as the name suggests, is strong on all aspects of accounting: Financial, cost, managerial, statistical, quantitative, analytical, text planning, investment analysis, portfolio management, corporate restructuring and merchant banking. BFIA's main thrust

is on meeting the demands of financial companies, banks and insurance sector in training mid-level management executives. The curriculum includes a three-year, on-the-spot training — more sustained, than incorporated in any other management course — with several of leading financial companies such as ACC, American Express, Arthur Anderson, Ccat Financial Services, Citi Bank, Deutsche Bank, ANZ Grindlays etc.

### **IGNOU Offers B.Ed. Course**

The Indira Gandhi National Open University (IGNOU) launched its Bachelor of Education (B.Ed.) programme for the year beginning January 2000.

The B.Ed. programme offered "is an innovative programme using self-instructional materials and information technology along with interactive personal contact programmes."

The B.Ed. programme aims at developing understanding and competencies required by practising teachers for effective teaching-learning process at the secondary stage.

The programme is essentially a judicious mix of theoretical and practical courses to develop in practising teachers knowledge, skills, understanding and attitudes, illustrations and cases of relevant situations and also need-based activities comprising the core of each course. The course is of two years duration and is offered in English medium.

The eligibility for admission shall be a bachelor's degree from a recognised university or a higher degree and two years full-time teaching experience in a primary/secondary/higher/senior secondary school recognised by the Cen-

tral or a State Government or a Union Territory.

The University may conduct an entrance test for admission, if necessary.

The Student's Handbook and prospectus can be obtained from all the Regional Centres of IGNOU or from Director SR and E, IGNOU, Maidan Garhi on payment of Rs. 10.

The last date for requisitioning the prospectus by post is July 25, and for submission of forms is August 9.

### University 2000

Indraprastha University, set up by the Delhi Government on the threshold of the millennium, is reported to be concentrating on major science and technology and engineering education challenges that would be faced by the world during the 21st century.

In its inaugural session beginning from August '99, the university plans to offer following eight programmes. M.Tech. (Integrated) in information technology; M.Tech (Integrated) in chemical technology; M.Tech (Integrated) in bio-technology; Master of business studies (E-commerce); Master of business studies (International Marketing); Master of computer aided management, Master of software engineering and Master of environmental management.

### We Congratulate...

1. Professor Palle Rama Rao who has been appointed Vice-Chancellor of University of Hyderabad.

2. Professor K.K. Aggarwal who has been appointed as Vice-Chancellor of Indraprastha University, Delhi.

## News from Abroad

### CSIR/TWAS Fellowship

The Council of Scientific and Industrial Research (CSIR) of India, and the Third World Academy of Sciences (TWAS) have instituted a number of fellowships for foreign scholars from developing countries who wish to pursue postdoctoral research in newly emerging areas in science and technology for which facilities are available in the Laboratories/Institutes of the CSIR.

The fellowships will be tenable in CSIR Research Laboratories/Institutes in India, at monthly stipend of Rs. 8800/- for the entire duration (maximum stay is 12 months). No provision will be made for any accompanying family member. In addition, the research fellows will be entitled to subsidized accommodation. The visiting scientist should not take up any other assignment while on the CSIR/TWAS fellowship in India.

The minimum qualification requirement is a Ph.D. degree in science or technology. The candidate should be a regular employee in a developing country and should be holding a research assignment.

Requests for CSIR/TWAS postdoctoral research fellowships should be sent by the applicant to both CSIR and TWAS. The cost of international travel by shortest route will be met by TWAS.

For further information and application forms please contact : Ms. Helen Grant, Third World Academy of Sciences (TWAS), C/o The Abdus Salam Centre for Theoretical Physics (ICTP), I-34014 Trieste, Italy, Phone : (+39 040)

2240 387, Fax ; (+39 040) 224559, E-Mail: twas@ictp.trieste.it

OR

Dr. R.K. Bhandari, Council of Scientific and Industrial Research (CSIR), Anusandhan Bhavan, 2 Rafi Marg, New Delhi-110 001, India, Phone (+91-11) 3714208, Fax : (+91-11) 3710618/3714788, E.Mail: bhandari@csirhq.res.nic.in

### The Global MBA

Engineering, science and technology are key areas to achieve increased productivity and international competitiveness. However, to compete globally, professionals require skills in the areas of business and management. It is reported that the Association of Professional Engineers, Scientists and Managers, Australia (APESMA), jointly with Deakin University, have launched a unique distance education management programmes, available at four levels, MBA (Technology Management), Graduate Diploma of Management, Graduate Certificate of Management, and Certificate, the programmes are designed to provide professionals working in a technology environment, with the opportunity to undertake formal management studies, which take into account their employment, family and in some cases, geographic circumstances.

In order to suit the demand of the Indian industry, the APESMA/Deakin University management programmes have been redeveloped and customised by leading academics from IIM, Ahmedabad and Calcutta, FMS and the Indian Institute of Science, Bangalore. The

redevelopment of the programme has been coordinated by the Educational Consultants India Ltd., a government of India enterprise.

The programme is self-paced and flexible and delivered through proven distance education techniques. Participants receive extensive learning materials and are not required to attend formal lectures or tutorials. However, facilitated study groups with relevant faculty members are organised on a regular basis in select cities for students requiring a face-to-face communication. The materials include study guides, reference readings, assignments and sample examinations. Some of the units are provided with audio-visual aids to complement the print materials. One of the units also offers a CD from the Harvard Business School. The APESMA/Deakin University programmes are fully portable, can be studied anywhere in the world and are administratively supported by the university. Therefore, participants can enrol without any career interruptions and can continue the programme even if they change their employment or move overseas.

The programme also has an Internet site which keeps students updated on the developments in each study area and students are encouraged to participate in e-mail discussion groups. If the students

require any further assistance with specific problems, these can be solved through one-on-one interaction with the faculty members via fax, e-mail or telephone. Participants are however encouraged to form organisational or neighbourhood-based study groups.

The programme has linkages with universities in the UK, Canada, Hong Kong, Europe and New Zealand and an international study option is also available, providing a facility for the students to elect to study up to one-quarter of the MBA at an overseas university.

Some of the units offered by APESMA/Deakin University are International Telecommunications Management, Engineering Risk Management, Strategic Management in Services, Management of Innovation, IT for Managers, Quality Management, International Business Strategy, Asia-Pacific International Marketing, etc.

Some of the companies who have their employees participating in the MBA programme in India are Cox & Kings (India) Ltd., Oracle, American Express, Hewlett-Packard, Pfizer, SAIL, General Motors, IOC Ltd., Indusind Bank Ltd., Apollo Tyres Ltd., Thermax, and Telstra.

The programmes have also gained popularity with the Indian Armed Forces.

Sundays. On DD2 International Programme will be shown at 11.00 to 12.00 hours on Saturdays only.

**1.8.99**

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**2.8.99**

"Chem Fun-7 : Chemical Fire"

"Molecular Geometry-1"

"Chemistry of Vision"

"A Sunny View — Optical Observatory - 2"

**3.8.99**

"Disha - 10 : Airlines Ground Staff"

"Biodiversity Himalayas Untold Story - 2"

"Monitor Lizard"

**4.8.99**

"Feathered Guests"

"Acupuncture : 4"

"On Pins and Needles"

"Brassica Campestris"

**5.8.99**

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"Question Time-109"

"The Art of Wood Carving"

**6.8.99**

"Early Man & His Science"

"Discourse on Anthropology & Folklore"

"Touch of Genius"

**7.8.99**

"Solemnity in Glass"

"Secrets of Science : Exploring the Outer Limits"

"Today's Health : 102"

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**3.8.99**

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**4.8.99**

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**5.8.99**

"अनार"

**6.8.99**

"समाजवाद : प्रो. नामदर सिंह - 1"

**7.8.99**

"बांसुरी"

## *News from UGC*

### **Countrywide Classroom Programme**

Between 1st and 7th August, 1999 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programmes are telecast on the

Doordarshan's National Network from 9.30 to 10.00 a.m. every day except on Saturdays & Sundays. These programmes are also telecast on Doordarshan's National Network from 6.00 to 6.30 a.m. two days a week i.e. on Saturdays and

## BOOK REVIEW

### An Excellent Approach to Neural Network Fundamentals and Applications

Arun Kumar Agrawal\*

N.K. Bose and P. Liang. *Neural Network Fundamentals with Graphs, Algorithms and Applications*. New Delhi. Tata McGraw-Hill Publishing Co, 1998. Pp. 478, Rs. 175/-.

This Tata McGraw-Hill Indian edition of McGraw-Hill original published in 1996 is an excellent and unique approach to the ever attractive subject of Neural Networks using Graph Theory.

Two new chapters Computational Learning Theory and Growth Networks are given which are not usually available in traditional texts. Chapters on Graph Fundamentals and Algorithm Fundamentals also are given and well treated.

The list of references is exhaustive. Paper used, printing and soft binding are very good, in fact much better than the original International edition.

The book can be used as an introductory text as well as for advanced study. The Introduction points out very well how different routes can be taken for different levels of readers. It is a clearly written and technically accurate and comprehensive treatment of the subject.

It gives a chapter on Neuroscience Fundamentals for beginners and covers all major topics including important applications.

To reinforce theoretical concepts and procedures it has solved many Neural Network Design Problems using MATLAB Neural Network Toolbox apart from giving numerous examples and end of chapter problems.

The book has ten chapters within four major divisions and an Appendix alongwith an exhaustive list of references. The four Divisions are following :

I "Fundamentals" consisting of three chapters namely

1. Basics of Neuroscience and Artificial Nervous Models.
2. Graphs
3. Algorithms

II "Feedforward Networks" consisting of four chapters namely

4. Perception and the LMS Algorithm
5. Multilayer Networks
6. Complexity of Learning using Feedforward Networks
7. Adaptive Structure Networks

III "Recurrent Networks" consisting of two chapters namely

8. Symmetric and Asymmetric Recurrent Networks and Competitive Learning
9. Self Organizing Networks

IV "Applications of Neural Net-

works" with a single chapter namely

10. Neural Approaches to solving Hard Problems

List of references contains 428 references and teh Appendix is on "Basis of Gradient-based Optimization Methods."

The notable feature of various chapters is that the authors start with introductory concepts and gradually take the reader to the advanced domains.

The book is very much up-to-date as we can see from the Applications Chapter where apart from the traditional Travelling Salesman problem, others like "The Multitarget Tracking Problem" Time-Series Prediction, Talking Network and Phonetic Typewriter, Autonomous Vehicle Navigation, Handwritten Digital Recognition, Image Compression, Character Retrieval and Visual Processing Networks are well covered.

The general treatment of topics is through Algorithms and a wide variety of Algorithms are given. Treatment is slightly mathematical to make the coverage precise and accurate. The book has many illustrations. In Chapter five on Multilayer Networks the topic of Probabilistic Neural Networks is also covered.

Apart from use as a senior undergraduate and postgraduate text the book may also be used by a mature professional as well as a researcher and research supervisor to look for frontier and new areas for research with hints towards approaching them.

Overall, this excellent book is a milestone in the subject and is a valuable addition to already existing resource material in the field of Neural Networks. □

\*Professor of Computer Science & Engineering, Institute of Technology, Banaras Hindu University, Varanasi-221 005.

# THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities (June-July 1999)

## SOCIAL SCIENCES

### Anthropology

1. Himabindu, M. Ageing problems and care: A study among the rural aged women of Visakhapatnam District, Andhra Pradesh. (Prof R Yathi Raj Kumar), Department of Anthropology, Andhra University, Waltair.

### Commerce

1. Anju. Management of tourism: A case study of Punjab Tourism Development Corporation. (Dr R S Arora), Department of Commerce, Panjab University, Patiala.

2. Mishra, Prabhakant. Commercial banking in India since 1950. Department of Commerce, Magadh University, Bodh Gaya.

3. Ramesh Chander. Performance appraisal of mutual funds in India. Department of Commerce, Kurukshetra University, Kurukshetra.

4. Suliman, Mahmoud Ahmad Abdel Majid. Economic development in Iraq with special reference to oil industry, 1976-1990. (Dr M H Chisty), Department of Commerce, Dr Babasaheb Ambedkar Marathwada University, Aurangabad.

### Economics

1. Anil Kumar. Impact of intensive cattle development programme on the economy of rural households in Haryana. Department of Economics, Kurukshetra University, Kurukshetra.

2. Biswas, Pradip Kumar. Rural industrialisation with special reference to West Bengal after independence. (Prof Prabhat Patnaik), Centre for Economic Studies and Planning, Jawaharlal Nehru University, New Delhi.

3. Fraser, J Sudha Sowbhagyavathi. Foreign aid and economic development: A study of India, South Korea and Columbia. (Prof G Nancharaiah), Department of Economics, University of Hyderabad, Hyderabad.

4. Gnana Sekar, S Arul. Forestry and rural development: A case study of Ayyalur Interface Forestry Project. Department of Rural Development, Gandhigram Rural Institute, Gandhigram.

5. Gupta, Rajesh Kumar. Economic implications of input subsidies in agriculture: A case study of Punjab. (Dr Janak Raj Gupta), Department of Economics, Panjab University, Patiala.

6. Jain, Sapna. Temporal and spatial dimensions of socio-economic development: A cross country study. Department of Economics, Kurukshetra University, Kurukshetra.

7. Kodoth, Praveena. Women and property rights: A study of land tenure structure and personal law in Malabar. (Prof D Narasimha Reddy), Department of Economics, University of Hyderabad, Hyderabad.

8. Masilemani, M Alankara. Energy in rural Tamil Nadu: A case of Gandhigram service villages Dindigul District. Department of Economics, Gandhigram Rural Institute, Gandhigram.

9. Panta, Murali Prasad. Economic and legal aspects of consumer protection in India with a comparison of the German experience. (Prof D Narasimha Reddy), Department of Economics, University of Hyderabad, Hyderabad.

10. Prabhakara Rao, K. An enquiry into the farmwise economics of tractor users: A case study in West Godavari District in Andhra Pradesh. (Dr M Chandrasekhar), Department of Rural Development, Andhra University, Waltair.

11. Ramana Murthy, R V. Price behaviour in macro economy: A sectoral approach. (Dr V Narasimhan), Department of Economics, University of Hyderabad, Hyderabad.

### Education

1. Janakavalli, Chinnasamy. A study of the effect of visual efficiency skills on the achievement of low vision children in Tamil Nadu. (Dr Ummesingh), Department of Education, South Gujarat University, Surat.

2. Kulbir Kaur. Causes of behaviour problems among urban adolescents as perceived by their parents and teachers. (Dr Amrit Kaur), Department of Education, Panjab University, Patiala.

### Journalism

1. Kulkarni, Leena Ratnakar. Maharashtra's Garware udyog samuhacha: Ek abhyas. (Dr V L Dharukar), Department of Journalism, Dr Babasaheb Ambedkar Marathwada University, Aurangabad.

### Library & Information Science

1. Prem Chand. Financial management of university libraries in India. (Dr K Navlani), Department of Library and Information Science, Panjab University, Patiala.

### Management

1. Chaudhary, Ritu. A study of organisational climate in relation to job satisfaction and managerial effectiveness in electronics industry in Punjab. (Dr B S Bhatia and Dr A S Chawla), Department of Business Management, Panjab University, Patiala.

2. Harvinder Singh. Performance evaluation of state industrial enterprises of Punjab. (Dr B S Bhatia and Dr G S Batra), Department of Business Management, Panjab University, Patiala.

3. Krishan Chand. Migrant labour and trade union movement in Punjab: A case of sugar industry. (Prof K C Singhal and Dr Sanjay Modi), Department of Business Management, Panjab University, Patiala.

4. Majumdar, Jagdip Priyavadanbhai. A study on financial administration in Indian universities with special reference to Gujarat State. (Dr A Kumar), Department of Business Administration, Bhavnagar University, Bhavnagar.

5. Subrahmanyam, P.R. Impact of environmental parameters on industrial absenteeism: A case study of M/s Hindustan Zinc Ltd, Visakhapatnam. (Prof V Mallika Pothana), Department of Commerce and Management, Andhra University, Waltair.

#### Political Science

1. Deshmukh, Nalini Krishna. Role of opposition in Maharashtra with special reference to Bharatiya Janata Party. (Dr S K Bhogie), Department of Political Science, Dr Babasaheb Ambedkar Marathwada University, Aurangabad.

2. Giri, Tharkeshwar Nath. Office of the United Nations High Commissioner for refugees and its role in the Third World refugee problems. (Dr C S R Murthy), Centre for International Politics, Organization and Disarmament, Jawaharlal Nehru University, New Delhi.

3. Suahil Joshua, Aaron T. Interplay of religion and politics in Israel: Politicised religion or theologised politics. (Prof Gulshan Dietl and Prof K R Singh), Centre for West Asian and African Studies, Jawaharlal Nehru University, New Delhi.

#### Psychology

1. Natashinder. Creativity and information processing. (Dr B S Sandhu), Department of Psychology, Punjabi University, Patiala.

#### Social Work

1. Subba Raju, D R K. Unionisation of agricultural labour: Problems and prospects. (Dr P S Dikshit), Department of Social Work, Andhra University, Waltair.

#### Sociology

1. Amarasinghe, Sarath Wimalasiri. Rural women in grassroots level organisations: A sociological study of select development programmes in the Hambantota District of Sri Lanka. (Dr Maitrayee Chaudhuri), Centre for the Study of Social Systems, Jawaharlal Nehru University, New Delhi.

2. Gihar, Pragati. Urbanization and changing social structure: A study of three selected localities in New Delhi. (Prof Nandu Ram), Centre for the Study of Social Systems, Jawaharlal Nehru University, New Delhi.

3. Jayawal, Rejeev. Tibetan refugees in India: A socio-logical study of continuity and change. (Dr Anand Kumar), Centre for the Study of Social Systems, Jawaharlal Nehru University, New Delhi.

4. Perera, Hettige Dona Yasanjali Devika. The puberty ritual and socialization among the Vedas: An anthropological study. (Dr Maitrayee Chaudhuri), Centre for the Study of Social Systems, Jawaharlal Nehru University, New Delhi.

5. Yasmin, Afroz Begum. Changing position of women in Bangladesh: A sociological study of women engaged in different professions. (Prof Yogendra Singh), Centre for the Study of Social Systems, Jawaharlal Nehru University, New Delhi.

## JUST RELEASED

### 1. Handbook on Engineering Education 1999

A compendium of information for those seeking admission to BE, B.Tech, B.Sc. (Engineering) courses in 565 Engineering Colleges/Institutions in Indian Universities/Institutions.

Price Rs. 200/-

### 2. Development of Question Banks — Principles & Practice

Gives details of various Question Banks developed over the years in Indian Universities and their application and evaluation in Examination System.

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## **CLASSIFIED ADVERTISEMENTS**

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**I. Minimum Qualification :**

For post under category A above :

- a) He/She should be an approved teacher in a college or University with contribution to educational innovations, design of new courses and curriculae.
- b) Good Academic record with Ph.D. Degree or an equivalent published work and at least 8 years teaching experience at the level of Lecturer or above in a college or University.

**OR**

- c) Good academic record with M.Phil degree and at least 10 years of teaching experience at the level of Lecturer or above in a College or University.

**II. For Post under category B above, Good academic record with atleast 55% marks or equivalent at Master's degree level in the relevant subject from an Indian University or an equivalent degree from a foreign University.**

Scale of Pay and Terms and Conditions of services are as laid down by the U.G.C., Goa University, Directorate of Higher Edu-

cation, Government of Goa and other relevant competent authorities prevailing from time to time.

Candidates under category B above should have cleared the National Eligibility Test (NET)/State Eligibility Test (SET) for lecturers by UGC/CSIR or similar Test accredited by U.G.C.

In case candidate having passed NET/SET is not available, candidates fulfilling other conditions would be appointed on purely temporary basis for one year only.

Applicants who are already employed shall forward their applications through proper channel and shall account for the break if any in their academic career/services.

Place : Canacona  
Date : 12.07.99

K.V. Gaenkar  
SECRETARY

**ALIGARH MUSLIM  
UNIVERSITY  
ALIGARH (U.P.)**

**Advertisement No. 2-A/1999  
Dated : 15.7.1999**

Applications on the prescribed form are invited for the following posts by 31.08.1999.

The number and nature of the posts may vary at the time of interview. The Selection Committee will be authorised to relax the prescribed qualifications if a highly qualified scholar is otherwise found suitable for the post. Higher initial start may be given to candidates possessing exceptional qualifications and experience.

**Scale of pay**

**Professor : Rs. 16400-22400 plus allowances**

**Reader : Rs. 12000-18300 plus allowances**

**Lecturer : Rs. 8000-13500 plus allowances**

**A Faculty of Science/Social Sciences/  
Arts/Commerce/Life Science**

**01. Professor of Archaeology & Ancient  
History, Department of History.**

**02. Professor of Linguistics (Socio Lin-**

**guistics), Department of Linguistics.**

- 03. Professor of Zoology (Parasitology),  
Department of Zoology.**
- 04. Professor of Museology (Plan Post),  
Department of Museology.**
- 05. Professor of Home Science (Plan Post),  
Women's College.**

**Qualifications --- Essential :**

An eminent scholar with published work of high quality actively engaged in research with 10 years of experience in postgraduate teaching and/or research at the University/National level Institutions, including experience of guiding research at Doctoral level.

**OR**

An outstanding scholar with established reputation who has made significant contribution to knowledge.

- 06. Reader in Social Work (Plan Post), Department of Sociology & Social Work.**
- 07. Reader in Home Science, Women's College.**

**Qualifications — Essential :**

"Good academic record with a doctoral degree or equivalent published work. Candidate from outside the University system in addition shall also possess at least 55% marks or an equivalent grade at the Master's Degree level. Eight years experience of teaching and/or research (at least 5 of these years were as Lecturer) and has made some mark in the areas of scholarship as evidence by quality of publications, contribution to educational renovation, design of new courses and curricula.

- 08. Lecturer in Centre of West Asian Studies (Temporary), Centre of West Asian Studies.**
- 09. Lecturer in Commerce, Department of Commerce.**
- 10. Lecturer in Commerce (MTA) (Plan Post), Department of Commerce.**
- 11. Lecturer in Commerce (MFC) (Plan Post), Department of Commerce.**

- 12. Lecturer in Museology (Plan Post), Department of Museology.**
- 13. Lecturer in Social Work (Plan Post), Department of Sociology & Social Work.**
- 14. Lecturer in Sociology (Leave Vacancy) — Temporary, Department of Sociology & Social Work.**
- 15. Lecturer in Home Science (Plan Post), Women's College.**
- 16. Lecturer in English (Language Teaching) (Plan Post), Department of English.**
- Qualifications — Essential :**
- Good academic record with atleast 55% marks or an equivalent grade at Master's degree level in the relevant subject from an Indian University or an equivalent degree from a foreign University.
- Candidates besides fulfilling the above qualifications should have cleared the eligibility test for lecturers conducted by the UGC, CSIR or similar test accredited by the UGC, provided that candidates who have submitted Ph.D. thesis or passed the M.Phil. Examination by 31st December, 1993 are exempted from the eligibility test for lecturers conducted by the UGC, CSIR or similar test accredited by the UGC.
- Desirable : (For the post at Sr. No. 15) Food & Nutrition.**
- Desirable : (For the post at Sr. No. 16)**
- "CIFEL's Diploma in English Language Teaching or a Comparable Diploma/Degree from a foreign University."
- B. Faculty of Medicine**
- 17. Professor of Pathology (Plan Post), Department of Pathology**
- Qualifications — Essential :**
- M.D. (Pathology)  
M.D. (Pathology & Bacteriology)  
M.D. (Pathology with Bacteriology)  
Ph.D. (Pathology)  
D.Sc. (Pathology)
- Teaching/Research experience :**
- As Reader in Pathology for 04 years in a Medical College.
- 18. Reader in Microbiology (Mycology), Department of Microbiology.**
- Qualifications — Essential :**
- M.D. (Bacteriology)/M.D. (Microbiology)  
M.D. (Bacteriology with Pathology)  
M.D. (Pathology & Bacteriology)  
M.B.B.S. with M.Sc. (Medical Bacteriology)/M.Sc. (Medical Microbiology)  
Ph.D. (Medical Microbiology)/Ph.D. (Medical Bacteriology)  
D.Sc. (Medical Bacteriology)  
D.Sc. (Medical Microbiology)
- Teaching/Research experience :**
- As Lecturer in Microbiology for 05 years in a Medical College.
- Desirable : Research work in the field of Mycology/Specialized training in Mycology.**
- 19. Lecturer in Endocrinology (Plan Post), Department of Medicine.**
- Qualifications — Essential :**
- D.M. (Endocrinology)  
M.D. in Medicine with 02 years special training in Endocrinology
- Teaching/Research experience :**
- Requisite recognized Post Graduate qualification in the subject.
- 20. Lecturer Medical Physics (Plan Post), Department of Radio-Therapy.**
- Qualifications — Essential :**
- (i) B.Sc. (1st Class) \*Dip. R.P. Plus 3-5 years experience as Assistant Physicist  
**OR**  
(ii) M.Sc. (Physics), \*Dip. R.P.  
**OR**  
(iii) M.Sc. (Medical Physics) from a recognised University.  
\*-Dip. R.P. (Dip. in Radiological Physics of the University of Mumbai con-
- ducted by Radiological Physics (R.PhD), B.A.R.C.
- Teaching/Research experience :**
- Requisite recognised Post Graduate qualification in the subject.
- C. Dental College**
- 21. Reader in Conservative Dentistry (Plan Post), Deptt. of Conservative Dentistry.**
- Qualifications — Essential :**
- A BDS Degree of an Indian University or an equivalent qualification with post-graduate qualifications in the subject (M.D.S. Operative) with 3 years teaching experience after postgraduation in the subject of specialisation.
- D. Faculty of Engineering & Technology**
- 22. Reader in Costume Design & Dress Making, Women's Polytechnic**
- Qualifications — Essential :**
- (i) Atleast Master's Degree with 55% marks in Home Science/Textile & Clothing/Fine Arts with 1st Class Diploma in Costume Design & Dress Making Fashion Designing/ M.Sc. with specialization in Textiles and clothing.
- OR**
- M.Tech. (Textile Technology) (Atleast one 1st Class of Bachelor's/Master's level).
- (ii) Five years experience in teaching/ Industry/Research at appropriate level.
- Desirable : (i) Ph.D. with specialization in Textile Technology/Garment Technology.**
- (ii) Published research work or Ph.D. Degree in relevant field.**
- 23. Reader in Electronics Engineering, Department of Electronics Engineering**
- Qualifications — Essential :**
- (i) First class Master's Degree in appropriate branch of Engineering/Technology.  
(ii) Five years experience in teaching/

industry/research at the appropriate level.

**Note :** Candidates from Industry/Profession with recognised Professional work equivalent to Master's degree would also be eligible.

**Desirable :** Ph.D. degree in Engineering/Technology.

**E. Dawakhana Tibbiya College**

24. Manager, Dawakhana Tibbiya College

**Scale of pay :** Rs. 12000-18000 plus allowances

**Qualifications — Essential :**

BUMMS or equivalent. Having 10 years experience in the job. Practising Hakim with knowledge of business in Unani Medicine. Good working knowledge in Urdu, Hindi and English.

**OR**

Postgraduate in Commerce/M.B.A. from a recognised University. Experience in the business of Unani Medicines of atleast 10 years, having good working knowledge in Urdu, Hindi and English. The candidate should preferably be above 45 years of age.

**Note :** 1. Qualifications and age are relaxable if the candidate is otherwise found suitable by the Selection Committee.

2. The incumbent on the post shall be employee of Dawakhana Tibbiya College and not of the Aligarh Muslim University, Aligarh.

**F. Administration**

25. Deputy Registrars, Aligarh Muslim University.

**Scale of pay :** Rs. 12000-18300 plus allowances

**Qualifications — Essential :**

(i) A Master's Degree with atleast 55% of the marks or its equivalent grade of B in the UGC seven point scale.

(ii) Five years of experience as a Lecturer in a College or a University with experience in educational administration.

**OR**

Comparable experience in research

establishment and/or other Institutions of Higher Education.

**OR**

Five years of administrative experience as Assistant Registrar or in an equivalent post.

26. Assistant Registrars, Aligarh Muslim University.

**Scale of pay :** Rs. 8000-13500 plus allowances

**Qualifications — Essential :**

(i) A Postgraduate Degree with atleast 55% marks or its equivalent grade.

(ii) Five years Administrative experience as Section Officer or in an equivalent post in any academic Institution/Government Office/Public Undertaking.

27. Assistant Finance Officers, Finance & Accounts Department.

**Scale of pay :** Rs. 8000-13500 plus allowances

**Qualifications — Essential :**

(i) A Postgraduate Degree with atleast 55% marks or its equivalent grade.

(ii) Five years Administrative experience as Section Officer (Accounts) or in an equivalent post in any academic Institutions/Government Office/Public Undertaking.

**Desirable :**

(i) M.B.A./M.Com. with exposure to Computerised Accounting in a University or Educational Institute of repute.

(ii) Persons desirous of appointment on deputation may also apply specifying this fact.

28. Medical Officer (Pathologist), JN Medical College Hospital.

**Scale of pay :** Rs. 8000-13500 plus allowances.

**Qualifications — Essential :**

(i) M.B.B.S.

(ii) Postgraduate Degree or Diploma in Pathology.

(iii) Three years experience in the relevant field in a recognised teaching

Hospital of which one year as a Resident Pathologist or equivalent.

29. Medical Officer (Blood Bank), JN Medical College Hospital.

**Scale of pay :** Rs. 8000-13500 plus allowances

**Qualifications — Essential :**

(i) M.B.B.S.

(ii) P.G. Degree or Diploma in Pathology.

(iii) Three years experience as Blood Transfusion Officer in a recognised Hospital or three years experience of working in Blood Bank of a teaching Hospital.

**OR**

(i) M.B.B.S.

(ii) Five years experience as Blood Transfusion Officer in a recognised Hospital/Teaching Hospital.

**Desirable :** Special training in practice of Blood Tranfusion from a recognised institution.

30. Nursing Superintendent, J.N. Medical College Hospital.

**Scale of pay :** Rs. 8000-13500 plus allowances

**Qualifications — Essential :**

(i) Master's Degree in Nursing

(ii) Ten years experience in Nursing Administration.

**Note :** For the posts at Sr. No. 07, 09, 12, 22, 26 & 28 those who have applied earlier need not to apply again. They will be considered on the basis of their previous applications, if found eligible. They may however send any additional information about their qualification/experience etc for considerations if so desire.

Prescribed application forms with instructions may be had either :

a) Personally from the Reception Counter, Administrative Block, AMU on production of Cash receipt for Rs. 25/- issued by the cash section, Finance Office, A.M.U., Aligarh.

**OR**

b) By post from the Assistant Registrar

(Selection Committee), Aligarh Muslim University, Aligarh-202 002, by sending a written request (mentioning the post, Advertisement number and date) with a self addressed stamped Rs. 6/- envelop of 9"x4" size and a Demand Draft/IPO for Rs. 25/- payable to the Finance Officer, Aligarh Muslim University, Aligarh-202 002. The cover should be superscribed, on the top left with 'Request for Employment form'.

Complete application form along-with cash receipt/Demand Draft/IPO for Rs. 125/- (non-refundable application fee) payable to the Finance Officer, AMU, Aligarh procured in the above manner may either be delivered personally or sent by post, superscribing on the top left of the cover the post applied for, advertisement number and date, to the Assistant Registrar, (Selection Committee), Aligarh Muslim University, Aligarh-202 002, so as to reach him by 31.8.1999.

**Important Note :** Applications received late or without necessary supporting documents or not accompanied by full prescribed fee or not submitted in the prescribed form shall be rejected summarily.

Prof. H.A.S. Jafri  
REGISTRAR

**SARDAR PATEL UNIVERSITY  
DEPARTMENT OF PHYSICS  
VALLABH VIDYANAGAR-388 120  
GUJARAT**

No : PG/PHY/DST-KNJ/1720  
Dated : 12.7.1999

**ADVERTISEMENT FOR J.R.F.**

Applications on plain paper are invited for the post of a Junior Research Fellow to work for a 3 year DST project, "Calculations on Collision interactions of charged particle in atomic molecular & cluster physics." Candidates having an M.Sc. degree in Physics with a minimum of 55% marks or equivalent grades, should send their applications alongwith complete bio-data to reach the undersigned on or before AUGUST 10, 1999. NET/GATE candidates will be preferred.

The emoluments (Rs. 5000/- p.m. + HRA) of the JRF will be as per the DST and the Sardar Patel University norms. No TA/ DA will be paid to the candidates called for the interview and/or for joining the post. The

selected candidate will have an option to pursue M.Phil./Ph.D. in the area of Atomic-molecular Physics.

E-mail: root@patel.ernet.in  
fax : 02692-46475

K.N. Joshipura  
**PRINCIPAL INVESTIGATOR**

**CENTRAL INSTITUTE OF  
HIGHER TIBETAN STUDIES  
SARNATH, VARANASI-221 007 (U.P.)  
INDIA**

Advertisement No. 1/1999  
Dated : 10.7.1999

Applications are invited on the prescribed form for the following 21 teaching posts :

- I. 5 Professors : Buddhist Mool Shastra-Two, Tibetan Jyotish-One, Tibetan Shilpa Vidya-One, Buddhist Studies-One.
- II. 2 Readers : Tibetan Shilpa Vidya-One, Tibetan Ayurvedic-One.
- III. 14 Lecturers : Tibetan Jyotish-One, Nyingma Sampradaya-One, Gelug Sampradaya-Two, Buddhist Mool Shastra-One, Tibetan Fine Arts-One,

Tibetan Bon-One, Tibetan Shilpa Vidya-One, Hiadi-One, Tibetan Wood Craft (S.T.)-One, German (S.C.)-One, French (S.C.)-One, Classical Chinese (S.T.)-One, Japanese (S.C.)-One.

Qualifications are as per UGC norms. The detailed information can be obtained from the office between 10.30 a.m. to 4.30 p.m. on all working days.

Application form is available for Rs. 75/- for general candidates and Rs. 45/- for ST/SC candidates. Application should reach the Registrar on or before 15.9.1999.

Dr. K.P. Singh  
REGISTRAR

**DARUL IRSHAD ARABIC  
COLLEGE, PARAL  
P.O. PARAL, THALASSERY  
(Affiliated to Kannur University)**

**WANTED**

Post : Lecturer in Arabic (1)

Qualification : As per the rules of the Kannur University and Govt. of Kerala.

Last Date : One month from the date of this notification.

**SHIVAJI UNIVERSITY  
KOLHAPUR**

**Admission Notice**

Candidates desirous of taking admission to the following courses should apply to the Ag. Registrar, Shivaji University, Kolhapur in the prescribed form on or before 15th Sept, 1999. Application forms alongwith prospectus can be had from The General Manager, Shivaji University Central Co-op. Consumers Stores Ltd. C/o Shivaji University, Vidyavihar, Kolhapur-4 in person or by sending necessary amount by D.D./P.O./M.O. (Dip. in Pop. Edn. Rs. 20/-)

Course : Correspondence-Cum-Contact one year.

**1. Diploma Course in Population Education.**

Basic Qualifications : Post-Graduate Degree (II Class) or B.Ed. those who are already working in the field of population education. (Attach Experience Certificate)

Candidates will have to come to Kolhapur & attend the contact course for 2 weeks in the Diwali vacation.

Vidyanagar,  
Kolhapur-416 004  
Date : July, 1999

Dr. S.N. Pawar  
Ag. REGISTRAR

Apply to the Manager with bio-data and postal order of Rs. 50/-

Paral  
14.6.99

MANAGER

UNIVERSITY COLLEGE OF  
ENGINEERING  
BURLA

ADVERTISEMENT

No. 1954/Ett. Dated 10th July 1999

Applications in the prescribed form from eligible Indian Nationals are invited for filling up the following posts in the University College of Engg., Burla, in the scale of pay as mentioned below with usual D.A. & other service benefits admissible. Application completed in all respects should reach the Principal, University College of Engg., Burla, -768 019 by registered post on or before 8th September, 1999. Application, incomplete in any respect or received after the due date will summarily be rejected without assigning any reason thereof.

Details of Vacancy Position

1. Civil Engineering : Professor — 01, Reader — 02, Lecturer — 01
2. Mechanical Engineering : Professor — 01, Reader — 02, Lecturer — 02
3. Electrical Engineering : Professor — 01, Reader — 03, Lecturer — 03
4. Electronics & Telecommunication Engineering : Reader — 03, Lecturer — 03
5. Computer Science & Engineering : Lecturer — 05
6. Physics : Lecturer — 01
7. Workshop : Workshop Superintendent — 01
8. Chemistry : Lecturer — 01
9. Mathematics : Professor — 01

Application form (in seven copies) with detailed instructions regarding qualifications, experience etc. are obtainable from Sambalpur University, Jyoti Vihar, Burla-768 019 during the office hours on any working day in person on payment of Rs. 70/- in the University cash counter (Rs. 17.50 for SC & ST) or by post by sending a crossed Bank Draft of the same value drawn in favour of Comptroller of Finance, Sambalpur University payable at S.B.I., Jyoti Vihar or UCO Bank, Katrapali alongwith a self addressed envelope of 30 cm x 12 cm size affixed with postage stamp of Rs. 17/-.

Candidates abroad may apply on plain

paper furnishing their curriculum vitae in seven copies. This Advertisement does not make it binding on the University to make appointment.

In-service candidates should submit one set of the application through proper channel.

(A) Scale of Pay (Pre-Revised)

(1) Professor : Rs. 4500-150-5700-200-7300/-

(2) Reader/Workshop Superintendent :  
Rs. 3700-125-4950-150-5700/-

(3) Lecturer : Rs. 2200-75-2800-100-4000/-

(B) Qualification and experience : As per AICTE norms.

(C) Appropriate reservation policy will be adopted for SC/ST candidates for the posts of Lecturers.

Prof. B. Pradhan

PRINCIPAL



INTERNATIONAL CENTRE FOR  
DISTANCE EDUCATION AND  
OPEN LEARNING  
H.P. UNIVERSITY, SHIMLA-5

ADMISSION NOTICE FOR THE  
SESSION 1999-2000

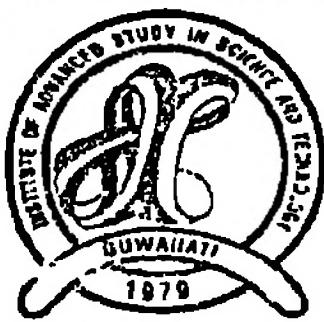
Course	Duration	Admission Schedule	
B.A., B.Com Part-I (Pass course)	Three years (Annual System)	Without late fee	30th Sept. 1999
		With late fee of Rs. 200/-	15th Oct. 1999
		With late fee of Rs. 500/-	16th Nov. 1999
PGDPM & LW	One year (Two semesters)	Without late fee	31st Aug. 1999
		With late fee of Rs. 200/-	15th Sept. 1999
		With late fee of Rs. 500/-	30th Sept. 1999
M.A. in English Economics, Hindi, History, Pol. Science, Public Admn., Sanskrit, Mathematics & M.Com.	Two years (Four semesters)	Without late fee With late fee of Rs. 200/- With late fee of Rs. 500/-	31st Aug. 1999 15th Sept. 1999 30th Sept. 1999

The hand book of Information containing the admission form and details can be obtained on payment of Rs. 100/- at the counter or by Regd. post by remitting Rs. 120/- through crossed IPO's/Bank Draft drawn in favour of the Director, ICDEOL, H.P. University, Shimla-171 005 from 19th July, 1999.

There will be spot admission in Himachal Pradesh and outside Himachal Pradesh. The spot admission programme will be notified separately sometime in the first week of August, 1999. However Prospectus will also be available at Govt. College, Dharamsala, Hamirpur, Mandi and S.D. School, 32-C, Chandigarh from 26.7.1999.

**Caution :** The University or the ICDEOL has not appointed any agent to collect fees and application forms on its behalf. The students are advised to correspond direct with the ICDEOL office.

Prof O.P. Sarawat  
DIRECTOR



# INSTITUTE OF ADVANCED STUDY IN SCIENCE AND TECHNOLOGY (IASST)

KHANAPARA, GUWAHATI-781 022; ASSAM

(Funded jointly by the Govt. of Assam & the Govt. of India)

Advt. No. 44

Applications on plain paper are invited from Indian citizens with full particulars including academic qualifications from Matriculation/HSLC onwards for the post of Professor at the Mathematical Sciences Division, IASST, so as to reach the undersigned on or before 14th Aug. '99. Full bio-data alongwith the attested copies of Certificates and Marksheets of all examinations passed and names of three referees, acquainted with the academic works of the candidates are to be furnished alongwith the application. Application must be accompanied with an IPO for Rs. 50/- (Rupees fifty) only to be drawn in favour of the Director, IASST.

The candidates already in service must apply through proper channel. Experience, past and present, must specifically be mentioned in the application.

The post is initially for a period of 2 (two) years under a major Project, sponsored by the DST, GOI, and will be regularised on the completion of the project provided the incumbent is found to be suitable.

The candidates, called for interview, will be provided 1st class return train fare by the shortest route. The applications, received after due date, will not be entertained.

Scale of pay : Rs. 4500-150-5700-200-7300/- (likely to be revised) with other allowances as per rules of the Institute.

#### ESSENTIAL QUALIFICATION :

1. An eminent scholar in Mathematics/Statistics with published research works of high quality, actively engaged in research with 10 years post doctoral experience in research and post graduate teaching at University/National level institution including experience of guiding research at doctoral level.

or

An outstanding scholar with established reputation who has made significant contribution/knowledge in the subject. Experience in implementation of research projects is desirable.

REGISTRAR (JC)



## INDIAN COUNCIL OF SOCIAL SCIENCE RESEARCH

New Delhi

## NATIONAL REGISTER OF SOCIAL SCIENTISTS IN INDIA

The compilation of National Register of Social Scientists is a regular programme of the ICSSR. The collected information is being organised as a computerized data base containing scholars academic background, areas of specializations and research interests. The ICSSR is approaching the scholars to collect relevant information in an especially designed proforma. Information is being collected from scholars working in the disciplines of Anthropology, Commerce, Communication (including Mass Communication and Journalism) Demography, Economics, Education, Geography, History, International Relations, Law, Linguistics, Management, Political Science, Psychology, Public Administration, Sociology (including Criminology), Social Work and Philosophy.

Social Scientists who have not been approached by the ICSSR for this purpose so far, may get in touch with the Data Archives in the following address. Alternatively, scholars may send a copy of the latest bio-data mentioning, particularly, areas of current research interests/specializations.

Deputy Director, Data Archives, Indian Council of Social Science Research,  
Post Box No. 10528, Aruna Asaf Ali Marg, New Delhi-110 067,  
Phone : 6179840, 6179841, Gram : ICSORES, FAX : 91-11-6179836  
e-mail : ICSSR@ren.nic.in



# TAMIL NADU VETERINARY AND ANIMAL SCIENCES UNIVERSITY

## CHENNAI-660 051

• Applications are invited for admission to Postgraduate Degree/Diploma Programmes in the Veterinary and Fisheries faculties in Tamil Nadu Veterinary and Animal Sciences University for the academic year 1999-2000.

**M.V.Sc. in the following disciplines**

Anatomy, Animal Genetics and Breeding, Animal Husbandry Economics, Animal Nutrition, Livestock Production and Management, Meat Science and Technology, Obstetrics and Gynaecology, Parasitology, Pharmacology, Preventive Medicine, Surgery, Veterinary Microbiology, Veterinary Pathology, Veterinary Physiology, Wild Life Science.

**M.F.Sc. in the following disciplines**

Aquaculture, Fisheries Biology, Fisheries Biotechnology, Fisheries Economics, Fisheries Environment, Fishing Technology and Fisheries Engineering, Industrial Fish Processing Technology.

**Ph.D. in Veterinary and Animal Sciences**

Animal Biotechnology, Animal Genetics and Breeding, Animal Husbandry Economics, Animal Nutrition, Clinical Medicine and Therapeutics, Livestock Production and Management, Meat Science and Technology, Obstetrics and Gynaecology, Parasitology, Pharmacology, Preventive Medicine, Surgery, Veterinary Microbiology, Veterinary Pathology, Veterinary Physiology.

**Ph.D. in Fisheries Sciences**

Aquaculture, Fisheries Biology and Capture Fisheries, Fisheries Economics.

**PG-DBM Programme**

Postgraduate Diploma in Business Management in Animal/Fisheries Sciences [Part Time Evening Course of Two Semesters (One Year duration)].

**ELIGIBILITY FOR ADMISSION**

**M.V.Sc./M.F.Sc.**

Candidates with B.V.Sc./B.F.Sc. degree of Tamil Nadu Veterinary and Animal Sciences University or any other University recognised as equivalent thereto shall be eligible to apply.

**Ph.D. in Veterinary and Animal Sciences**

Candidates with basic B.V.Sc. degree and M.V.Sc. degree in the concerned field of specialisation from a recognised University shall be eligible to apply.

**Ph.D. in Animal Biotechnology**

Candidates with M.V.Sc. degree in any field of specialisation (except Animal Husbandry Economics, Animal Husbandry Extension and Animal Husbandry Statistics) or M.Sc. degree in Biotechnology with basic B.V.Sc. degree, recognised as equivalent thereto shall be eligible to apply.

**Ph.D. in Animal Husbandry Economics**

Candidates with basic B.V.Sc. degree and Master's degree in Animal Husbandry Economics/Agricultural Economics/Dairy Economics/Economics recognised as equivalent thereto shall be eligible to apply.

**Ph.D. in Fisheries Science**

Candidates with basic B.F.Sc. degree and Master's degree in Fisheries Science or any other degree recognised as equivalent thereto shall be eligible to apply.

**Ph.D. in Fisheries Economics**

Candidates with basic B.F.Sc. degree and Master's Degree in Animal Husbandry Economics/Agricultural Economics/Dairy Economics/Fisheries Economics/Economics from a recognised University shall be eligible to apply.

Candidates with an OGPA of 3.00 out of 4.00 under trimester system or 7.0 out of 10.0 under semester system or 70% aggregate alone are eligible to apply for admission to M.V.Sc./M.F.Sc./Ph.D. degree courses. However, this will not apply to SC/ST candidates for whom a minimum pass is sufficient.

**PG-DBM Programme (PART-TIME — EVENING COURSE)**

Bachelor's degree professional courses like B.V.Sc., B.Sc. (Agri.), B.Sc. (Hort.), B.Sc. (Forestry), B.E., B.L., M.B.B.S., (or) equivalent degree examination of any recognised University with an OGPA of 3.00 out of 4.00 in trimester system (or) 7.0 out of 10.0 in semester system (or) 50% in conventional system.

**(OR)**

First (or) Second class Master's degree in Science/Arts.

In case of SC/ST candidates, a pass in the qualifying examination prescribed as above is sufficient.

Experience in animal industries will be given due weightage.

Note : M.V.Sc./Ph.D. students of TANUVAS and Ph.D. students of Arts and Science Colleges/Universities can also apply for the course.

**NOTABLE POINTS :**

- ⦿ Application forms are issued from 22.07.99 to 16.08.99
- ⦿ Cost of the applications including registration fee is Rs. 75/- for the SC/ST candidates and Rs. 150/- for OTHERS for each course.
- ⦿ Separate application form should be used for Master's, Doctoral and PG-DBM Programmes.
- ⦿ Application forms can be obtained on a written request from the Office of the Chairman, Admission Committee (PG), Tamil Nadu Veterinary and Animal Sciences University, Madhavaram Milk Colony, Chennai - 660 051 by sending the cost of the application in the form of a crossed demand draft drawn in favour of the "FINANCE OFFICER, TANUVAS, CHENNAI-660 051" payable at STATE BANK OF INDIA, SERVICE BRANCH, Chennai along with a self addressed envelope (size 30 x 25 cm) with a postage of Rs. 18/-.
- ⦿ Last date for the receipt of applications is 23.08.99 upto 5.45 p.m.
- ⦿ The filled in application may be sent to the Chairman Admission Committee (PG), TANUVAS, Madhavaram Milk Colony, Chennai-660 051.
- ⦿ Applications received after the due date will be summarily rejected. The University will not be responsible for any postal delay.
- ⦿ This notification is also available @ [www.tanuvas.com](http://www.tanuvas.com)

**CHAIRMAN**  
Admission Committee (PG/PG-DBM)